

Technology Review



APRIL, 1961

*Prime Minister Macmillan,
M.I.T. Centennial Speaker*

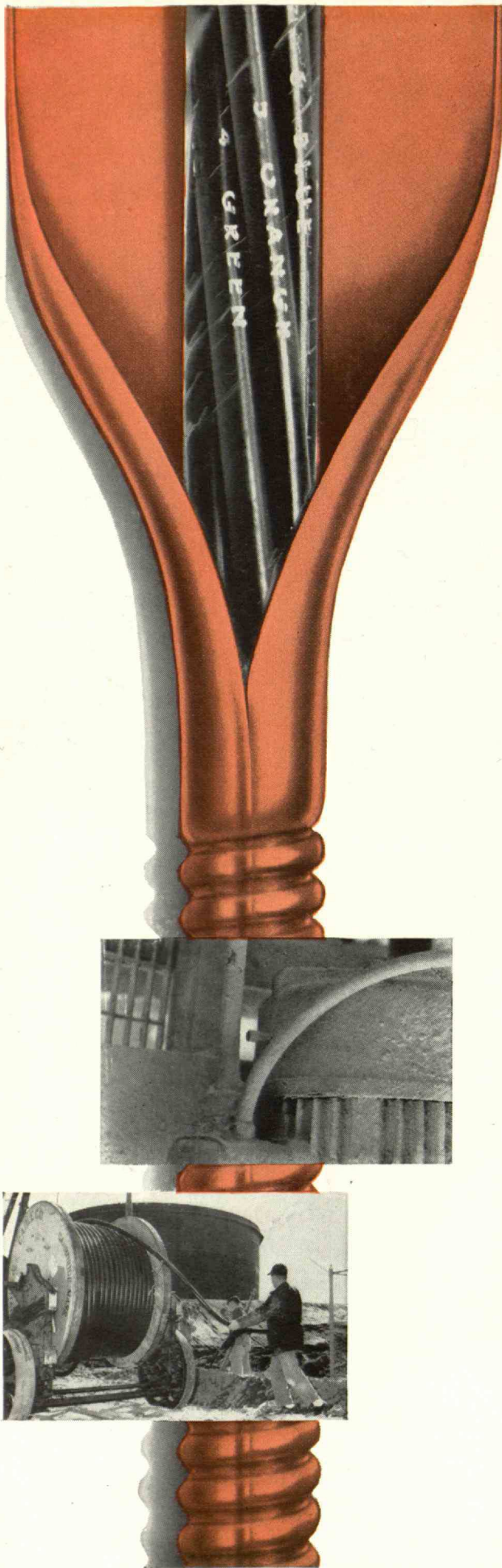
A Century of
American Architecture
in Photos, Page 20

A Day Below
the Nuclear
Reactor, Page 25

technology review

Published by MIT

This PDF is for your personal, non-commercial use only.
Distribution and use of this material are governed by copyright law.
For non-personal use, or to order multiple copies please email
permissions@technologyreview.com.



Only **C-L-X**[®]
Continuous Lightweight exterior

Sealed Cable Systems by **Simplex** Can do so Many Jobs so Well

Simplex C-L-X is a packaged combination of cable and an extremely pliable, corrugated metal sheath. It requires no separate duct or conduit regardless of environment. It is available with steel sheath and plastic jacketing; and with copper or aluminum sheaths, with or without plastic jacketing.

C-L-X Cuts Installation Costs

By using a single length of 3-conductor 15KV C-L-X for both underground and aerial use, a Southeastern utility company saved more than 20,000 dollars from what it would have cost for a complete underground duct system.

Resists Chemical Attack

Conduit life in this company's calcium chloride reclamation building was only 6 to 9 months. The conduit was replaced with a C-L-X cable system which — after two years of operation, shows no signs of deterioration.

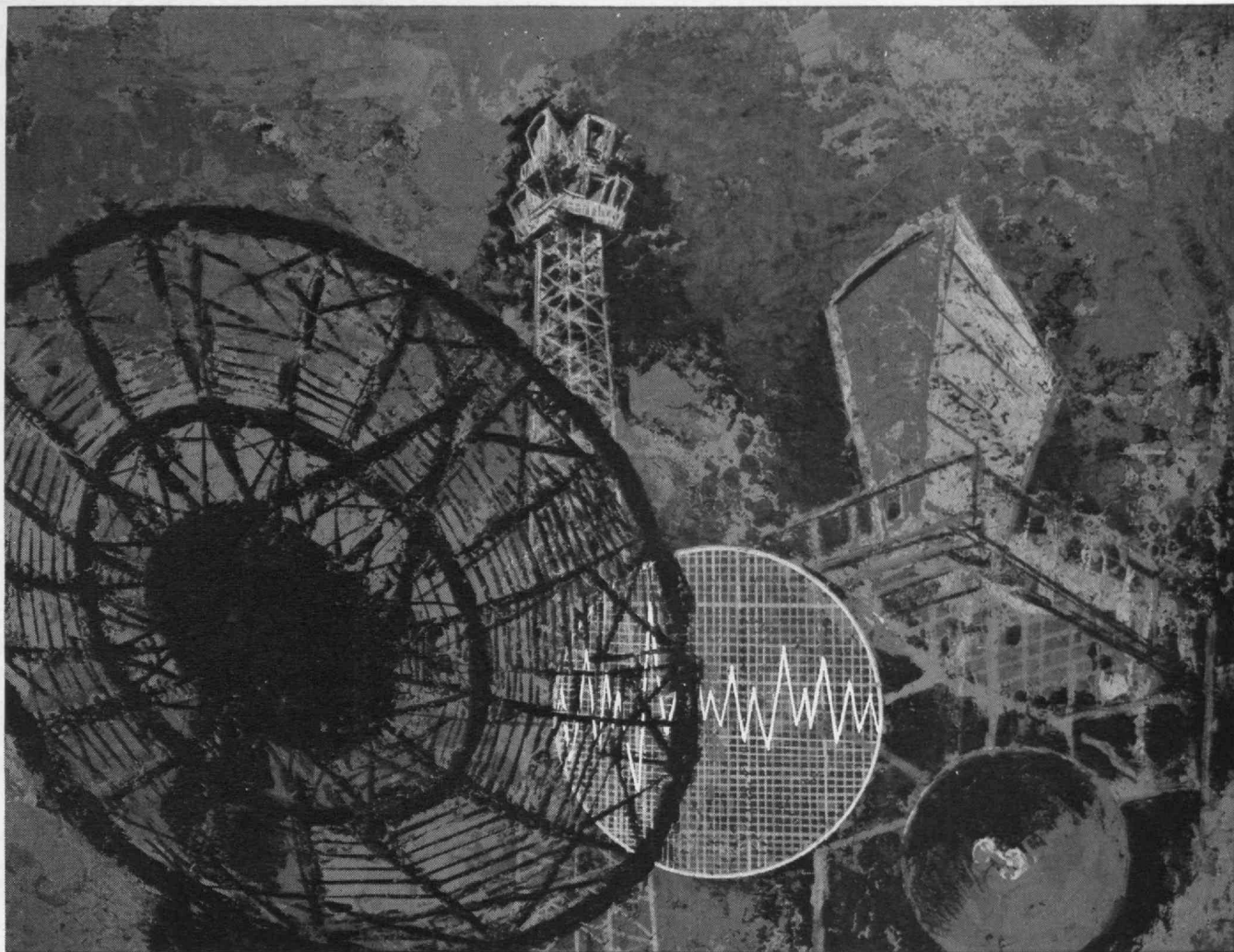
Protects Against Liquids and Gases

An East Coast petroleum tank farm used a C-L-X 8-conductor cable protected with PVC for direct burial in ground that was saturated with oil, gas and water. Result: Perfect performance at a sizeable savings over conduit systems.

Only Simplex C-L-X offers you: Exceptional Strength . . . Unequalled Pliability . . . Protection from Liquids and Gases . . . Faster Installation and Lower Costs. Send for Illustrated Brochure containing Application and Engineering Data.

SIMPLEX WIRE & CABLE CO

CAMBRIDGE, MASSACHUSETTS



Is your future up in the air?

As the communications needs of our nation become steadily greater and more complex, the Bell Telephone System is continuing its pioneer work in microwave by "taking to the air" more and more to get the word across.

To this end, Western Electric—the manufacturing arm of the Bell System—has the monumental task of producing a large part of the microwave transmission equipment that knits our country together by shrinking thousands of miles into mere seconds.

In spite of its great technological strides, the science of radio relay is a rapidly-changing one. And new breakthroughs and advances are common occurrences. A case in point: our Bell System "TH" Microwave Radio Relay. This newest development in long-distance telephone transmission will eventually triple the present message-carrying capacity of existing long-haul radio relay installations. A full-scale system of 6 working and 2 protection channels can handle 11,000 telephone messages at the same time.

To make microwave work takes a host of special equipment and components: relay towers, antennae, waveguides, traveling wavetubes, transistors, etc. But just as important,

it takes top-caliber *people* to help us broaden our horizons into such exciting new areas as communication by satellites!

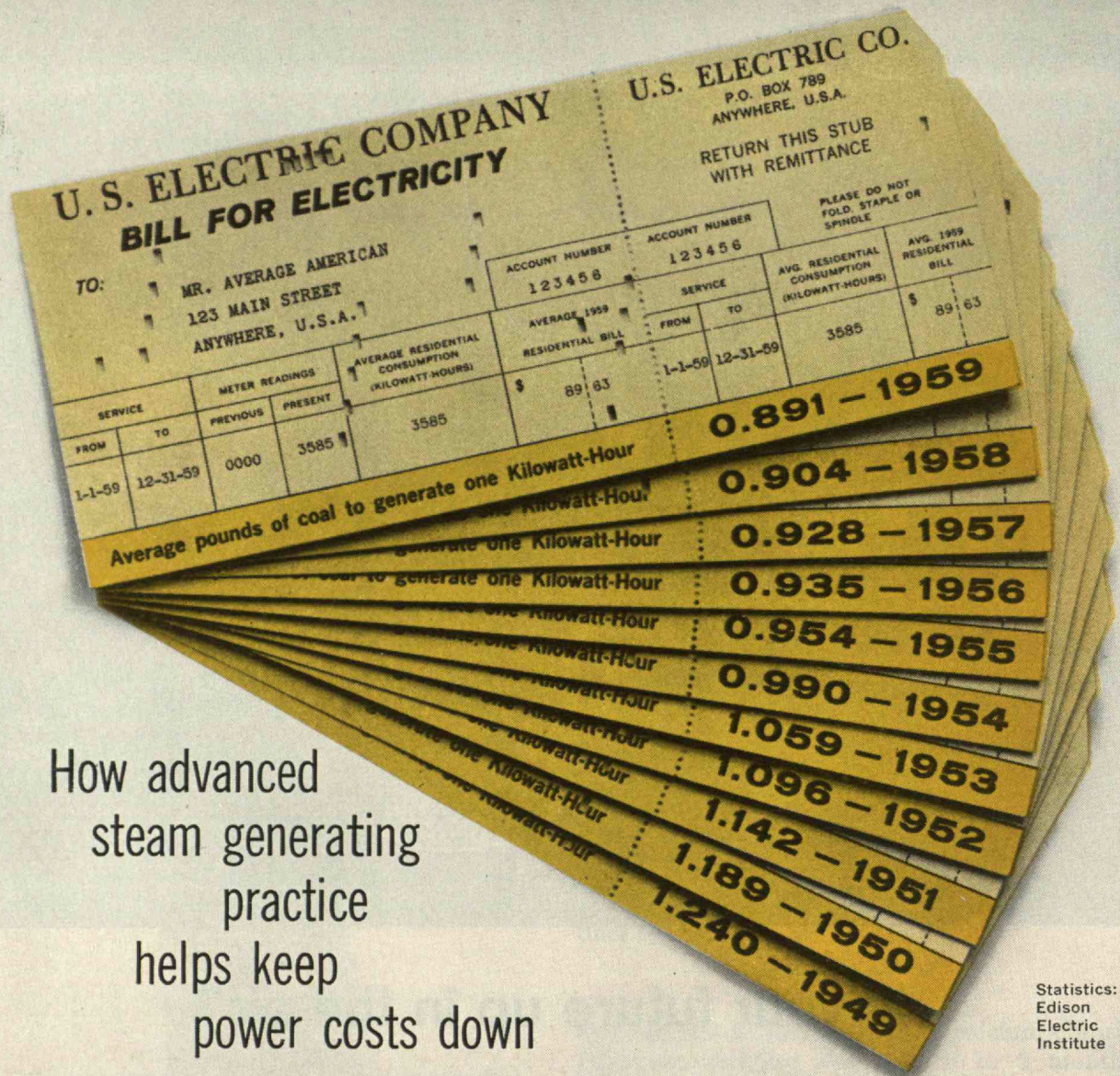
And microwave is only part of Western Electric's opportunity story. We have—right now—hundreds of challenging and rewarding positions in virtually all areas of telephony, as well as in development and building of defense communications and missile guidance systems for the Government.

So, if your future is "up in the air," you owe it to your career to see "what's up" for you at Western Electric.

Opportunities exist for electrical, mechanical, industrial, civil and chemical engineers, as well as physical science, liberal arts, and business majors. For more information about Western Electric, write College Relations, Room 6104, Western Electric Company, 195 Broadway, New York 7, N. Y.

Western Electric
MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

Principal manufacturing locations at Chicago, Ill.; Kearny, N. J.; Baltimore, Md.; Indianapolis, Ind.; Allentown and Laureldale, Pa.; Winston-Salem, N. C.; Buffalo, N. Y.; North Andover, Mass.; Omaha, Neb.; Kansas City, Mo.; Columbus, Ohio; Oklahoma City, Okla. Engineering Research Center, Princeton, N. J. Teletype Corporation, Skokie, Ill., and Little Rock, Ark. Also Western Electric distribution centers in 33 cities and installation headquarters in 16 cities. General headquarters: 195 Broadway, New York 7, N. Y.



How advanced
 steam generating
 practice
 helps keep
 power costs down

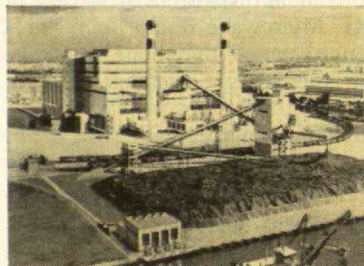
Heat energy released by the combustion of fuel generates about 80 per cent of America's electric power. And, during the decade just passed, Combustion Engineering supplied over 40 per cent of the new steam generating capacity added by the nation's electric utility industry.

Because of continuing technological progress, post-war inflationary trends have had little effect on the unit cost of electricity to residential and industrial users. In fact, the average cost per kilowatt-hour the country over is much less today than it was in the thirties. The ever increasing efficiency of converting the heat energy of fuel into electrical energy, as evidenced by the coal consumption rates listed above, is the principal reason why electricity continues to be "America's best buy".

Combustion Engineering, through its development of new and improved boiler designs, has been a major contributor to this advancing technology. These devel-

opments have made possible the use of ever higher steam pressures and temperatures and larger turbine capacities. (The capacity of the average turbine powered by C-E Boilers has more than tripled since 1950.)

These and other advances have helped the electric utility industry to counter the effects of inflation. This has been good for everyone—American homes and American industry alike.



Eddystone station of Philadelphia Electric Company. Here, two C-E Sulzer Monotube boilers, each powering a 325-megawatt turbine, went into service in 1960. Both operate in what is called the "supercritical" range. The first is designed to produce steam at record pressures and temperatures—5,000 pounds per square inch and 1200°F.

COMBUSTION ENGINEERING



GENERAL OFFICES: Windsor, Conn.
 NEW YORK OFFICES: 200 Madison Avenue, New York 16

C-303

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

Technology Review

Reg. U.S. Pat. Off.

Volume 63, Number 6

Edited at the Massachusetts Institute of Technology

April, 1961

Feedback

Too Much Pap?

FROM FREDERIC LANGMACK, '56:

The "word" passed to all M.I.T. Alumni and to the general public in The Boston *Herald's* mammoth supplement and in all alumni correspondence is that in its second century M.I.T. will be centered around, but not exclusively devoted to, science and technology. I, for one, am glad to see that the Institute is broadening its role in our society. There is no doubt that without the continued financial support of Alumni, M.I.T. will not reach its new goals. But I would like to suggest that there are other ways in which Alumni can help the Institute progress. I would like to suggest a method of tapping the intellectual resources of all Alumni. Too often, I fear, only those Alumni who hold teaching and administrative positions in the Institute are in a position to contribute ideas to the Institute.

In keeping with M.I.T.'s evolution from an institute which considers only objective facts to an institute which is also concerned with the dialogue of the mind, I propose that The Technology Review's concept of itself be broadened and deepened. Frankly, during the time I have been reading The Review, I have found that it contains too few thought-provoking articles and too much "aren't we great" public relations pap. At its worst, our alumni magazine contains only a watch-me-climb-the-corporate-ladder gossip column, "Individuals Noteworthy," and a review of the latest Buck Rogers gadgets developed by Institute personnel. In short, too often our alumni magazine resembles the slick, bland magazines big corporations grind out for their employees.

In my opinion, what The Review needs is a large injection of controversial material. In other words, I believe both the Institute and its Alumni would be better off if The Review devoted more space to ideas and criticism and less space to gadgets. I would like to see the magazine become something the Alumni looked

(Continued on page 6)



LAND is being cleared now for the five Technology Square buildings to be erected adjacent to M.I.T., as shown in this drawing.

CENTENNIAL EVENTS to which reference is made in this issue will be reported in more detail in the June and July issues of The Review.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Muriel R. Roberts, Pauline Gates; BUSINESS STAFF: Madeline R. McCormick, Marianne G. Hagerty; PUBLISHER: H. E. Lobdell, '17.

The Technology Review is published monthly from November to July inclusive, on the 27th day of the month preceding the date of issue, by the Alumni Association of M.I.T.; Clarence L. A. Wynd, '27, President; H. E. Lobdell, '17, Executive Vice-president; Thomas F. Creamer, '40, William L. Taggart, Jr., '27, Vice-presidents; Donald P. Severance, '38, Secretary-Treasurer.

Copyrighted, 1961, by the Alumni Association of M.I.T.

Editorial and business offices are in Room 1-281, Massachusetts Institute of Technology, Cambridge 39, Mass. The Review is published at The Rumford Press, 10 Ferry Street, Concord, N. H.

An annual subscription in the U.S. is \$4.00; in Canada and elsewhere, \$4.50; a single copy, 60 cents. Three weeks must be allowed to effect a change of address, for which both the old and the new address should be given.

Second-class postage paid at Concord, N. H.

Contents

The Cover

Prime Minister Harold Macmillan of Great Britain will be one of many world figures participating this month in the observance of M.I.T.'s Centennial.

Individuals Noteworthy

4

A new Institute Professor is named, and many Faculty members and Alumni figure in the recent news.

The Trend of Affairs

13

Centennial affairs and electronic computers dominate this month's report on M.I.T. and its people.

Education and the GNP

17

Professor Robert M. Solow explains how the gross national product is determined, and the importance of what goes on in men's heads.

A Century of Architecture

20

Photos of outstanding American buildings that will be featured in the Institute's Centennial exhibit.

A Day Beneath the Reactor

25

Medical therapy has begun with the M.I.T. nuclear reactor; this is an eyewitness's report on the treatment of a brain tumor.

Books

29

Reviews of new books of especial interest to Alumni of M.I.T.

Class Reunions

30

A listing of dates and places for this year's gatherings.

Professors Now

31

Portraits of 15 men whose promotions were announced this spring.

Institute Yesteryears

32

Items that were news at M.I.T. 25, 50, 75, and 100 years ago.

Individuals Noteworthy

New Institute Professor

NEXT June 1, Cyril Stanley Smith, who received his doctorate at M.I.T. in 1926, will return to Cambridge as an Institute Professor. He is currently professor of metallurgy in the Institute for the Study of Metals, which was established under his direction in 1946 at the University of Chicago.

At M.I.T., Professor Smith's interests will be divided between metallurgy and the history of science and technology. He is, in the words of President Julius A. Stratton, '23, "very broadly concerned with the interplay between science and technology and the influence that these developments have had on the entire history of human thought. We expect him to make important contributions to our growing program of teaching in the history of science and technology at M.I.T."

"He will also maintain an active interest in metallurgy, where he expects to concentrate on studies aimed at understanding the basis of structure in inorganic matter and to explore particularly the features common to metallurgy, ceramics, and geology."



Cyril Stanley Smith, '26

"His appointment as Institute Professor is intended to provide him with freedom to concentrate as he may wish on research and advanced teaching and to work freely throughout the Institute without regard to departmental boundaries."

Born in Birmingham, England, in 1903, Dr. Smith studied at the University of Birmingham before coming to this country. He was at one time a research associate in the M.I.T. Physics Department. From



WHILE CONSULTING recently with Boeing aircraft officials, Secor D. Browne of the M.I.T. Faculty was shown a model of the new three-engine, medium range, 727 jet transport by Wellwood E. Beal (left), Senior Vice-president, and E. C. Wells, Vice-president, Engineering, of the company.

1927 to 1942 he was a research metallurgist with the American Brass Company. He then became an associate division leader at the Los Alamos Scientific Laboratory in charge of metallurgical work on fissionable material for the atomic bomb. His work in this area won him the U.S. Medal of Merit.

Professor Smith is a member of the National Academy of Sciences, and has served on the President's Science Advisory Committee. He is a consultant to the Argonne, Brookhaven, and Oak Ridge National Laboratories and the Los Alamos Laboratory. He has received many patents and contributed many papers to technical journals.

Names in the News

THE NEW CHAIRMAN of the Atomic Energy Commission's Advisory Committee on Reactor Safeguards is Professor *Theos J. Thompson*, Director of the M.I.T. Reactor . . . *Clair E. Turner*, '17, Professor of Public Health, Emeritus, is helping the World Health Organization and UNESCO promote health education . . . Professor *Walter G. Whitman*, '17, received the New England "Engineers' Week" award this year.

Professor *William P. Allis*, '23, has been named to the Board of Editors of "Reviews of Modern Physics" . . . President-elect of the American Association of Physics Teachers is *Frank Verbrugge*, former staff member of the Radiation Laboratory . . . *John G. King*, '50, Associate Professor of Physics, won third place in the national competition for new pieces of physics apparatus sponsored by the American Association of Physics Teachers.

Donald H. Grangaard, former research associate in cellulose chemistry, has become Senior Research Associate of the Kimberly-Clark Corporation . . . *Samuel B. Maloof*, '43, is currently a guest of the Institute in the Department of Mechanical Engineering.

In Metal Work

NORMAN R. GARDNER, '53, is president of a new metalworking company in Boston, called the Metalonics Corporation. Frank M. Yans, '57, and Alan D. Donaldson, '57, are vice-presidents and Houlder Hudgins, Professor of Industrial Management at M.I.T., is chairman of the board.

(Continued on page 38)

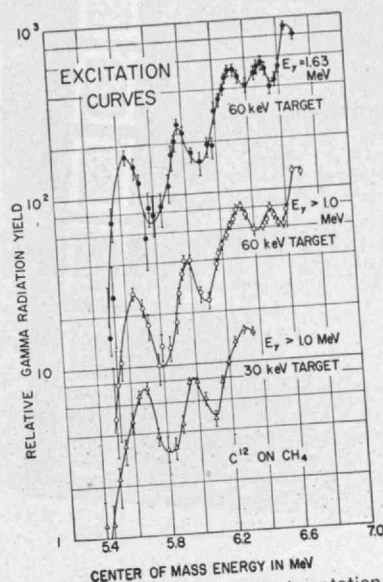
"CHARGED PARTICLES"

Nuclear-Structure Research

Initial work with the 12-Mev Tandem Van de Graaff has confirmed beyond expectations our early conviction that this accelerator system would greatly extend areas of useful research. A previously "dark" area, in fact the whole upper half of the periodic table, can now be investigated with precision. The range now beginning to be explored with extremely stable monoenergetic particle beams includes many isotope-rich elements and the important domain of fissionable materials. Current research indicates *the Tandem has increased the number of resolvable energy levels by an order of magnitude*. In constructing a theory of the nucleus, the precision we speak of is every bit as important as the extension in energy. Tandem ion beams permit discrimination between closely associated energy levels and reveal new subtleties in the fine structure of heavier elements.

The Tandem Van de Graaff's external ion source at ground potential is a boon to experimenters. There are seventeen stable nuclei up to oxygen, and all of these may be used as bombarding particles. With multiple stripping and two-stage acceleration, oxygen ions have been accelerated to 60 Mev.

A characteristic of truly new research tools is evident in the way the Tandem is shaping the direction and objectives of physics research programs. As a result, four laboratories with machines installed and performing to specifications, and others



Data from current experimentation with the Tandem Accelerator at Chalk River Laboratories, Atomic Energy of Canada Limited.

awaiting Tandem delivery, are planning to undertake work that is new and challenging.

At High Voltage, careful thought is already being given to feasible extension of the basic Tandem principle. A three-stage injector Tandem with guaranteed 17.5-Mev proton energy is on order for the University of Texas, and Tandem systems with 22-Mev proton energy are feasible today. This "second generation" of Tandems will employ higher terminal potentials, three stages of acceleration and developments to increase beam current. We are also investigating pulsing techniques for Tandems, and the possibility of polarized ion sources is being studied.

A paper at our recent Accelerator Conference, "Current Experimentation with the Tandem Accelerator at the Chalk River

Laboratories¹," describes an outstanding experimental physics program. Write us for a copy.

"Low-Energy" Physics

As we address ourselves to this subject, more elegantly called *nuclear-structure physics*, the reader may conclude we have an axe to grind, and we admit it. We believe a great deal of research remains to be done on light nuclei. There is, for example, time-consuming but rewarding precision nuclear spectroscopy to fill in gaps in existing energy level data, as well as new research related to the conservation of isotopic spin, excitation energies of low excited states and direct interaction mechanisms.

Because much nuclear-structure research can be accomplished with standard Van de Graaffs in the 1-5 Mev energy range, equipped with ion sources for hydrogen, helium or heavy elements, these machines represent ideal research instruments for the university physics laboratory of modest proportions. We are presently compiling information on exactly where machines of moderate cost and energy can make significant contributions in illuminating concepts of nuclear structure and would be happy to discuss this subject with you.

¹H. E. Gove, *Proceedings of the Second Accelerator Conference, Amsterdam, Oct., 1960* (North Holland Publishing Company, 1961) p. 63.

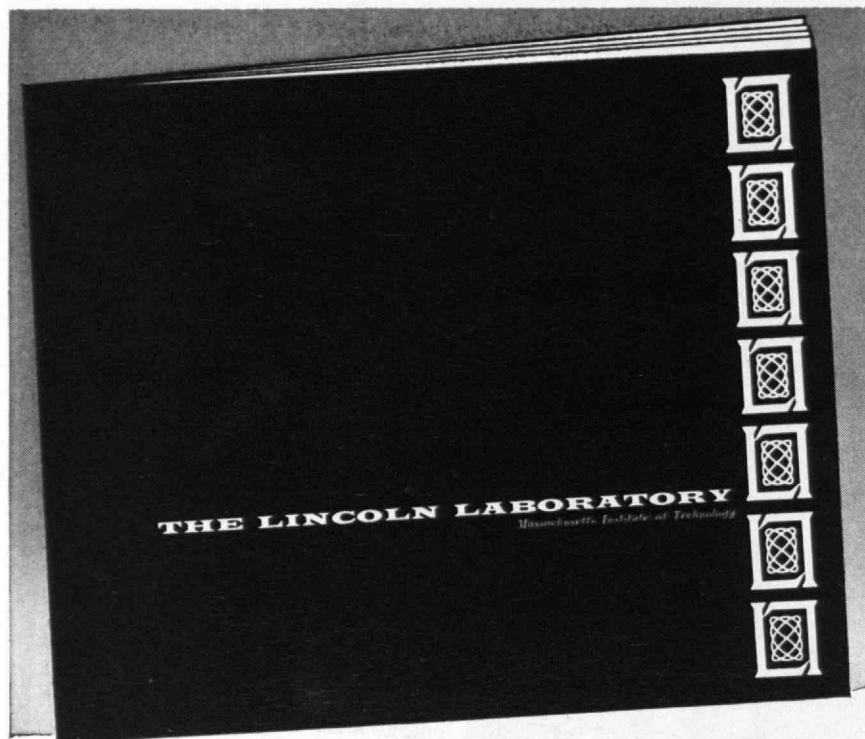
HIGH VOLTAGE ENGINEERING CORPORATION

BURLINGTON, MASSACHUSETTS, U.S.A.

APPLIED RADIATION CORPORATION

HIGH VOLTAGE ENGINEERING (EUROPA) N.V.





Major Expansion in the program of the Laboratory requires participation of senior members of the scientific community in our programs:

**RADIO PHYSICS and ASTRONOMY
SYSTEMS:**

Space Surveillance
Strategic Communications
Integrated Data Networks

NEW RADAR TECHNIQUES

SYSTEM ANALYSIS

COMMUNICATIONS:

Techniques
Psychology
Theory

INFORMATION PROCESSING

SOLID STATE Physics, Chemistry, and Metallurgy

- A more complete description of the Laboratory's work will be sent to you upon request.

Research and Development

LINCOLN LABORATORY

Massachusetts Institute of Technology

BOX 28

LEXINGTON 73, MASSACHUSETTS



Feedback

(Continued from page 3)

forward to receiving, read thoughtfully when they received it, and discussed whenever they met. I would like to see the space now devoted to superficial photographs devoted to letters from irate, curious, or bemused Alumni who have been shocked, stimulated, or stunned by articles and essays in *The Review*. Only in this way can the Institute tap the minds, as well as the pocketbooks, of its Alumni scattered throughout the world.

*Terrace Park Court
Ames, Iowa*

Management Questions

FROM WINFIELD I. MCNEILL, '17:
Professor McGregor's very interesting article in February's *Technology Review* stresses the need for "changes in strategy and policies for those who direct others," due principally to advances in science and technology. This appears to be a very reasonable conclusion. In this connection may I ask a series of questions?

1. Is the above the most important factor that influences executive development and motivation?

2. Is not the most important factor the failure of business to choose leaders whose prime characteristics are character, intellectual honesty, and fairness in dealing with subordinates?

3. Is not this the principal reason that keeps professional executive recruiters busy and prosperous, and keeps them supplied with outstanding prospects?

4. Do schools of business emphasize this most important factor, and illustrate with case histories which are all too numerous?

5. Should not graduates from business schools examine this point before taking a position in any company?

*107 Wood Pond Road
West Hartford 7, Conn.*

For Educational Purposes

FROM ALBERT F. COLEMAN, '31:

We would like very much to reproduce the following two articles from the *Technology Review*: "Plasma Research: A Case History" (Nov. 1960), and "Walloping the Atmosphere" (Jan. 1961). We wish to distribute some 40 reprints to our key engineering and marketing personnel for educational purposes only.

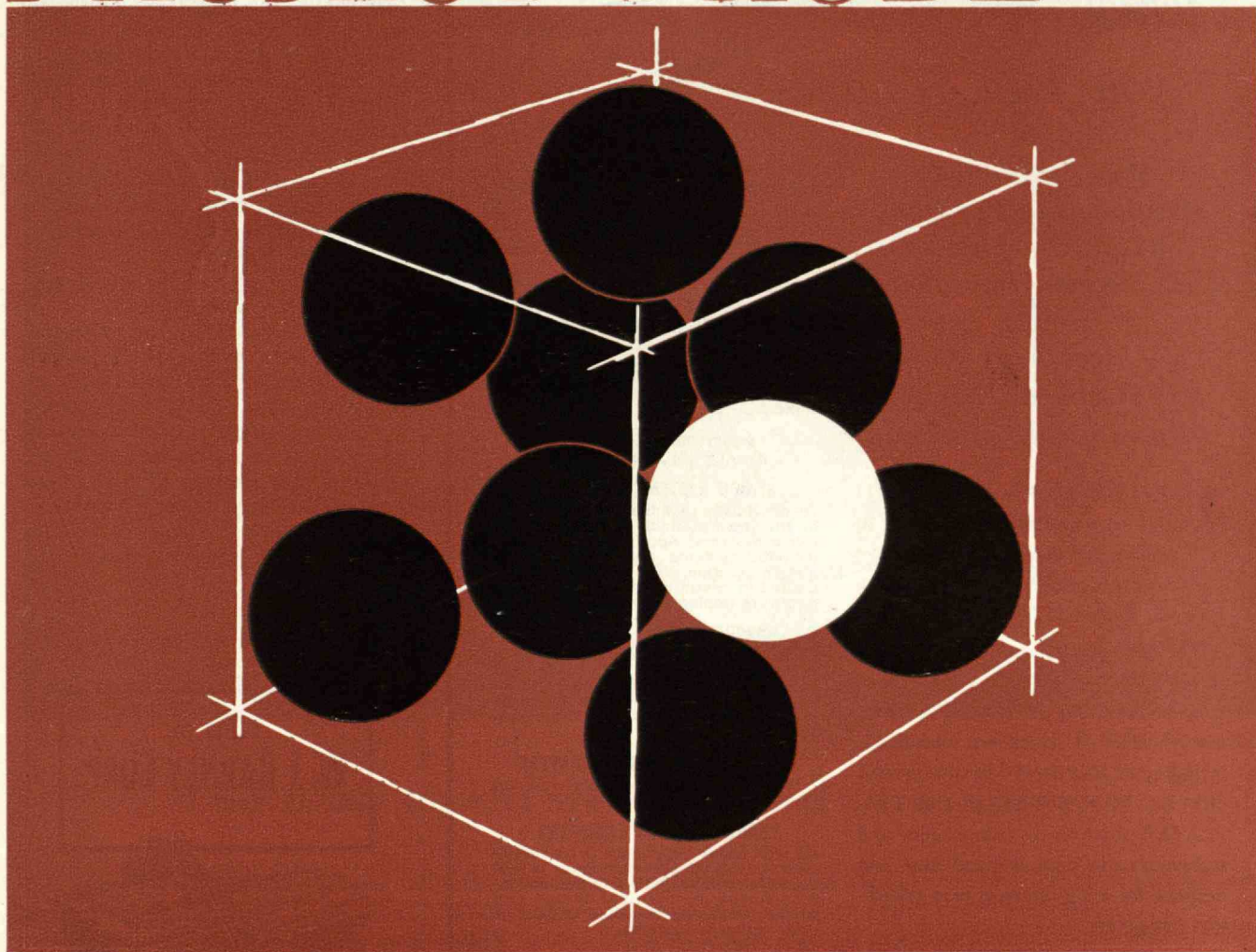
*Radio Corporation of America,
Princeton, N.J.*

[The *Review* receives many requests such as this and in most cases is able and happy to grant them.]

(Concluded on page 8)

MELPAR LAUNCHES: PROJECT PROBE

*The Parade of
Disciplines in the
Most Advanced
Areas of the
Physical Sciences*



Today, exploring in all of the physical sciences, Melpar is probing in many areas of fundamental research, such as:

Physical Chemistry, encompassing the relation of physical properties of biological materials to biological functions.

Physical Techniques and Measurements in such fields as electron spin resonance, in conjunction with the studies of molecular structure to determine Zeeman effects on free radicals.

Chemistry Studies in fluorescence, organic reactions, electrochemistry, polymer research, and gas chromatography and radiochemistry.

Why use gas chromatography? Why use electron spin resonance? These represent but a few of the areas Melpar is now exploring. This is Melpar: Project Probe.

Scientists with advanced degrees in any of the Physical Sciences, who are interested in participating in **Melpar: Project Probe**, are invited to write to F. J. Drummond, Professional Placement Manager, Melpar, 3355 Arlington Boulevard, Falls Church, Virginia.

MELPAR  **INC**
A Subsidiary of Westinghouse Air Brake Company

NOW...

choose
your
location
when
you join Sanders!

PLAINVIEW, L.I., N.Y.
suburban New York City. Brand new facility opened in December 1960.

NASHUA, NEW HAMPSHIRE

BURLINGTON, MASS.
Company headquarters in the beautiful hill country only an hour from down-town Boston.
on famous "Electronics Row" in suburban Boston. Advanced Systems Laboratories opened in November 1960

You'll Find Top Engineering Positions at All 3— plus... The Same Atmosphere of Growth and Achievement that Caused This Dynamic Expansion

STARTING only 9 years ago with 11 Engineers and an initial order of \$117.00, Sanders Associates today has a personnel role of over 1600—and a contract backlog of \$53,000,000.

This history of success was built through creation of *original technical concepts* resulting in unusual achievements—most of which are classified—including FLEXPRINT® flexible printed circuits, PANAR® radar and TRI-PLATE® microwave components and techniques—in high demand now and destined for a big future in next generation computers.

Pioneering programs are being continued in phased arrays, radar, pulse doppler radar systems, space radar and communication systems, providing stimulating assignments in space technology, missiles and radar systems.

To arrange a convenient interview appointment, send resume in confidence to R. W. McCarthy.

POSITION IN NASHUA

SENIOR CONSULTANT TRANSISTOR CIRCUITRY

To provide technical guidance at the Corporate level on a wide variety of transistor circuit design problems. Requires ability to design detailed circuits rapidly.

POSITIONS AVAILABLE AT ALL LOCATIONS FOR:

SENIOR SYSTEMS ENGINEERS

To contribute to advanced techniques in the general field of military electronic systems. Applicable experience includes systems analysis, synthesis and integration, with extensive background in circuit design augmented by hardware implementation.

CIRCUIT DESIGN ENGINEERS

EE or Physics graduates with 2 to 8 years experience and familiarity with tubes and transistors and their utilization in all types of circuits, as well as the integration of circuits into sub-systems.

TRANSMITTER DESIGN ENGINEERS

2 to 8 years experience. For work up to and including microwaves.

PRODUCT DESIGN ENGINEERS

ME with heavy experience in feasibility studies coupled with experience in taking developed systems into production, monitoring mechanical design and overall packaging concepts of ECM or other airborne systems.

POSITIONS IN PLAINVIEW, LONG ISLAND

GROUND SUPPORT EQUIPMENT ENGINEERS

To design and develop system, assembly and sub-assembly electronic test equipment for the military. Should have appreciation for test equipment philosophy, with extensive experience in circuit design and hardware follow-through.

®registered trademark

Feedback

(Concluded from page 6)

A Plea From Iran

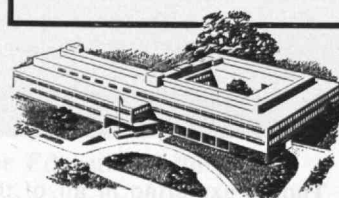
FROM DAVID E. MORGAN, '39:

I know that many of my school and classmates have visited India, Pakistan, Afghanistan, Iran, etc., but for those who have not, I hope they will make a point of doing so! These countries are in the middle of the first stage of industrialization, with unbelievable enthusiasm and sacrifice! Unfortunately, most of their efforts are wasted on their necessary defense (some 60 per cent of the budget is for military purposes); and the lion's share of the balance must be used to stop these countries from further deterioration, mostly due to the highest rate of increase of population in the world. That leaves so little for material improvement of the living conditions of over 600 million people.

In no other part of the world have I seen such genuine friends as the U.S.A. has in India and Pakistan. They need our technical help as well as our financial help! Our future security, the lives of our children, and the security of our system depend on this part of the world more than we realize. I urge everyone to think of our great friends here, to help them however each one of us can—as our future depends so much on them!

Tehran, Iran

BUILT BY
W. J. BARNEY CORP.



Chas. Pfizer & Co., Research Lab.
Shreve, Lamb & Harmon Associates,
Architects

Quality in building

Means low upkeep, efficiency of operation and prestige. We are noted for quality as well as speed and economy. A reason why over 70% of our contracts come from clients for whom we have built before.

W. J. BARNEY CORPORATION

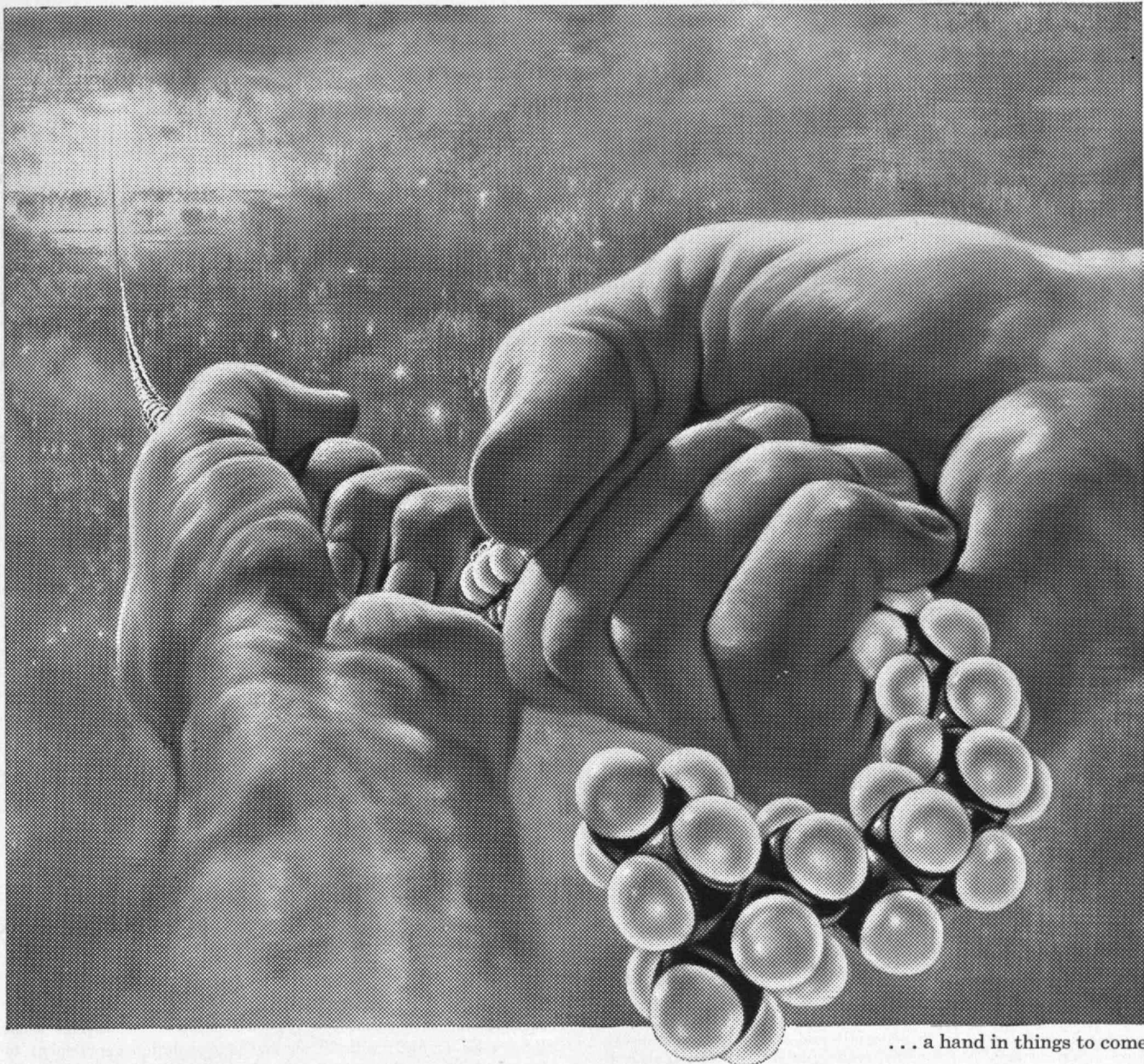
Founded 1917

INDUSTRIAL CONSTRUCTION

101 Park Avenue, New York

Alfred T. Glassett, '20, President

 **SANDERS ASSOCIATES, INC.**
NASHUA, NEW HAMPSHIRE



... a hand in things to come

The long chain with no end of wonders

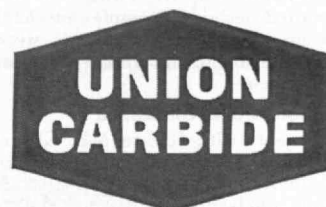
A single molecule of polyethylene is a giant chain created from several thousand basic molecules... and it takes billions of these giants to make a simple squeeze bottle or a child's toy! All the familiar plastics are derived from basic molecules found in common substances such as water, salt and natural gas. After years of research, scientists learned how to rearrange the molecules and link them together into long chains, bringing you a great variety of colorful, durable, adaptable materials.

Just look around you and see what the many plastics from Union Carbide offer you today... inexpensive flooring that puts a new touch of beauty in your home... paints that dry in minutes... "printed" circuits that simplify the wiring in your television set... adhesives that can even bond metal to metal... so many things that were unheard of before plastics came on the scene.

Scientists are still adapting plastics to new uses, molding their molecules into new forms. In working with BAKELITE Brand polyethylenes, epoxies, phenolics, styrenes, and vinyls, the people of Union Carbide are continuing the research that helps to fill your life with endless wonders.

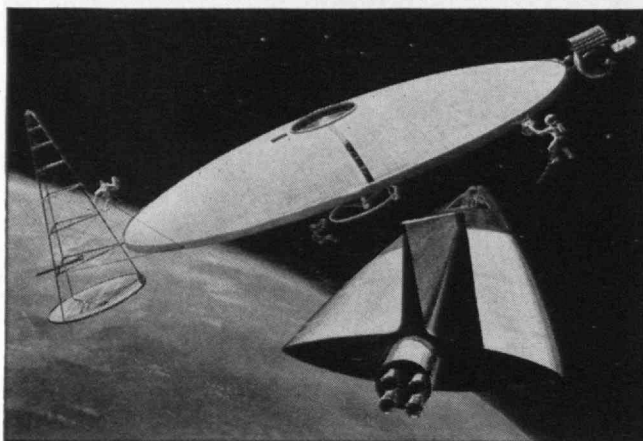
"Bakelite" is a registered trade mark of Union Carbide Corporation

Learn about the exciting work going on now in plastics, carbons, chemicals, gases, metals, and nuclear energy. Write for "The Exciting Universe of Union Carbide" Booklet R, Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y. In Canada, Union Carbide Canada Limited, Toronto.



...a hand
in things to come

Space-age careers at Boeing



This year, engineering and science alumni will find more challenging and rewarding careers than ever at Boeing. Advanced missile and space-age programs are expanding, and the proportion of engineers and scientists to Boeing's total employment is growing steadily. Boeing programs include the Dyna-Soar boost-glide vehicle, Minuteman solid-propellant ICBM, BOMARC defense missile system, B-52G missile bomber, KC-135 jet tanker-transport, the Boeing 707, 720 and recently announced 727 jetliners, and lunar, orbital and interplanetary systems and advanced research projects. A few of the many immediate openings are listed below:

DEVELOPMENT PROGRAM SUPPORT

SEATTLE AREA

B.S. or higher in AE, CE or ME (with any amount of experience) to perform temperature analysis and conduct studies in gas dynamics, heat transfer, ablation and gas dynamics testing.

STRUCTURAL DYNAMICS

SEATTLE AREA

M.S. or Ph.D. in AE or Engineering Mechanics (with at least two years research and development experience in structural dynamics, including response and stability, dynamic analysis, dynamic analysis methods or servo characteristics) to investigate response characteristics of time-variant and non-linear systems and develop methods of analysis.

MICROWAVE SYSTEMS

WICHITA AREA

M.S. in Electrical Engineering or Ph.D. in Physics. To accomplish basic research in the fields of microwave components and transmission systems. Studies of materials and techniques to improve wave guide systems. Assignments include laboratory and analytical research.

WEAPON SYSTEMS ANALYSIS

SEATTLE AREA

B.S. in AE, EE, ME or Math (with experience in testing, design or development of missile systems or subsystems, including ground support equipment and ground operational equipment) to plan and establish procedures for evaluating the results of Minuteman ICBM weapon system testing, and assist in analyzing data evolved during test programs and prepare reports incorporating this information.

AERODYNAMICS

WICHITA AREA

M.S. or Ph.D. in Aerodynamics. For assignments in development programs involving STOL technology, performance analysis, establishment of preliminary aerodynamic configuration, stability and control predictions, supersonic engine inlet design and testing, and internal aerodynamic investigation. These programs involve preliminary design on aircraft and missile projects.

GAS TURBINE ENGINE DESIGN

SEATTLE AREA

B.S. or M.S. in ME (with 5 to 10 years experience in layout and detailed design of complex mechanical assemblies involving lubrication, thermal stress, inertia stress and assembly tolerances) to perform layout and design work on gas turbine engines and their components.

PACKAGING ENGINEERING

SEATTLE AREA

Engineers with B.S. in ME, CE or EE to design and develop industrial and military packaging for the protection of electronic equipment and missile and aircraft components. Assignments include analyzing, evaluating and testing methods, materials and techniques for the protection of fragile and intricate items.

FACILITIES EQUIPMENT ENGINEERING

SEATTLE AREA

Engineers with B.S. degrees in ME, ChemE or EE, with five years minimum experience, to provide services which include equipment design, specifications, selection and operational reliability. Equipment involved may be manufacturing process and test equipment (e.g., hydraulic functional test equipment) or electronic equipment (e.g., test equipment for air-borne electronic systems.)

CERAMICS

SEATTLE AREA

Ceramicist with Ph.D. degree or equivalent professional background to conceive and conduct investigations of the factors influencing ductility and fracture.

BASE INSTALLATIONS

SEATTLE AREA

B.S. in EE or ME (with 10 years experience in architectural or engineering design, design checking or coordination, drawing delineation or equivalent activity) to review architectural and engineering drawings of guided missile base installations and comment on design, recommending revisions, preparing cost estimates, and engage in Air Force and other outside company contact work.

COMPUTER METHODS

SEATTLE AREA

B.S. in EE, ME or Math (with 0 to 6 years applicable experience) to find new uses for and integrate new electronic digital computing equipment with existing equipment.

ANTENNA SYSTEMS

SEATTLE AREA

M.S. in Electrical Engineering or Ph.D. in Physics. To accomplish basic research in the fields of surface wave antennas or large array antennas for possible air-borne application through use of the IBM 7090 Digital Computer, 231R Pace Analog Computer and other antenna laboratory equipment. Projects include such items as antennas for omnidirectional radiation pattern coverage in both horizontal and vertical polarizations.

QUALITY CONTROL

SEATTLE AREA

B.S. or M.S. in Electrical Engineering, Mechanical Engineering, Physics, Chemistry or Metallurgy. Advanced training in Mathematics/Probability Science helpful. Establish requirements and analyze reliability performance data; correlate performance data and design specifications; design test programs based on statistical parameters; recommend changes to product design and determine the need for changes in manufacturing process.

PLASMA PHYSICS

SEATTLE AREA

Experimental and theoretical physicists with Ph.D. degree in physics for the staff of the Plasma Physics Laboratory, Boeing Scientific Research Laboratories, to conduct studies in the field of basic microwave plasma physics, transport properties of plasmas and quantum plasma physics.

ELECTRONICS AND GUIDANCE SYSTEM DESIGN

SEATTLE AREA

B.S. in EE or ME (with EE or mechanical design experience) to evaluate flight instrument requirements for the Dyna-Soar boost-glide vehicle program, perform avionics component and system engineering, prepare source control drawings or design procurement specifications, perform technical evaluation of vendor proposals, perform design and development monitoring, evaluation and qualification testing, and system avionics integration.

TEST ENGINEER

WICHITA AREA

M.S. in Aeronautical, Electrical or Mechanical Engineering. For test programs covering aerodynamic, electrical, electronic, structural and mechanism projects. Assignments require planning, development monitoring and analysis of tests in laboratories and actual flights.

STRUCTURES & MECHANICAL DESIGN

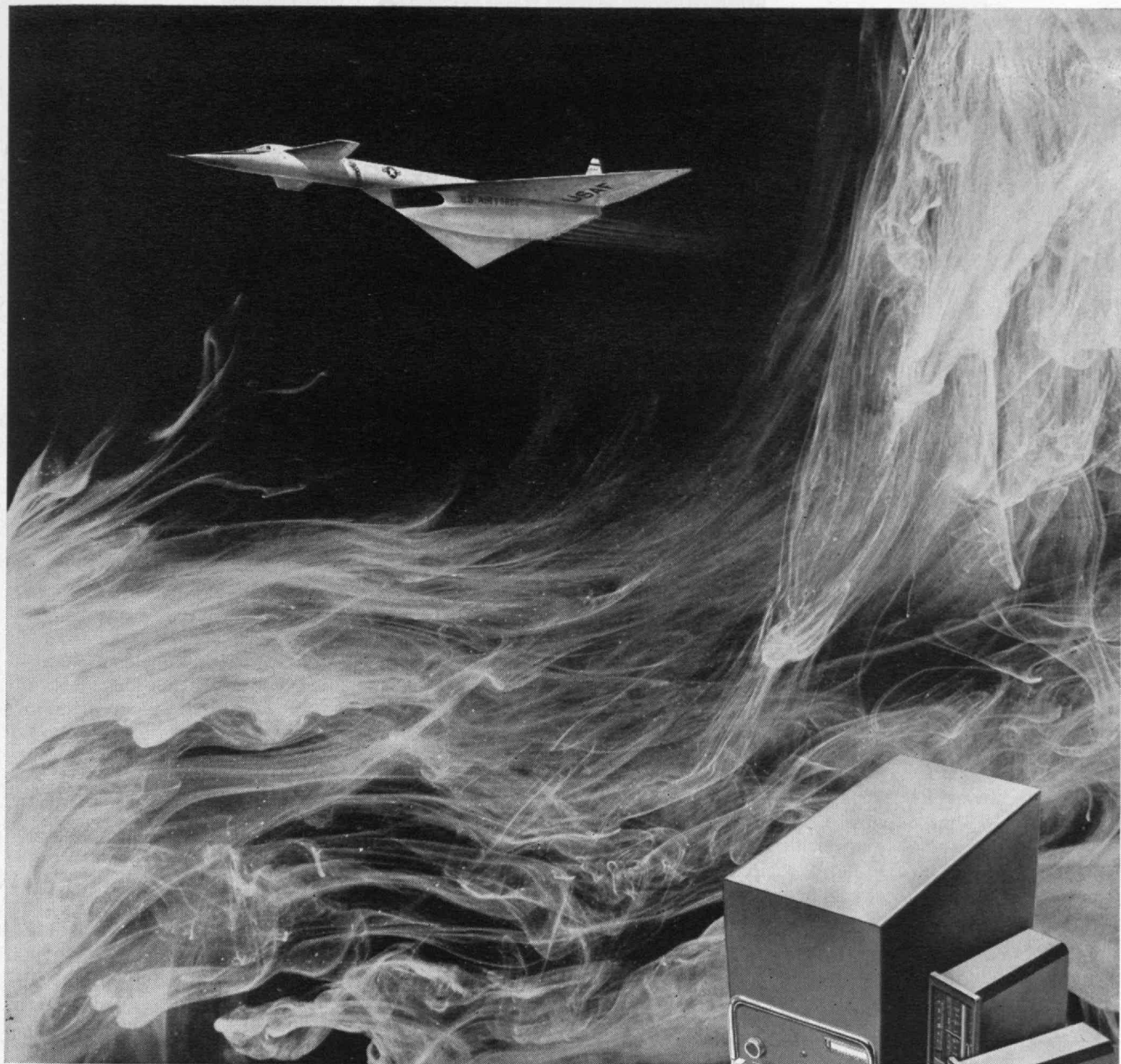
SEATTLE AREA

B.S. in CE and ME for component and assembly design for transport airplanes in developmental and production phases. Must be capable of contributing creative engineering and original ideas to airplane applications. Requirements in landing gear, controls, air conditioning, hydraulic, and structural systems.

Advantages you'll enjoy at Boeing include up-to-the-minute facilities, unexcelled research equipment, insurance and retirement programs, and a company-paid graduate study program (M.A. and Ph.D.) designed to help you get ahead faster.

For further information write: Mr. John C. Sanders, Boeing Airplane Company, P. O. Box 3822 - UMT, Seattle 24, Washington.

BOEING



Superhuman reflexes for supersonic aircraft... The AiResearch centralized air data computing system will enable the pilot of the B-70 bomber to control the extraordinarily high performance characteristics and rapidly changing environmental conditions of this advanced Mach 3 aircraft. The result of 10 years of research and development, this extremely reliable system simultaneously senses, measures and automatically corrects for all flight conditions and supplies information to other vital systems including autopilot, fire control, automatic flight control, bombing and navigation. AiResearch air data systems are operational on most of the free world's supersonic aircraft.



• *Outstanding opportunities for qualified engineers*



AiResearch Manufacturing Divisions

LOS ANGELES 45, CALIFORNIA • PHOENIX, ARIZONA

OTHER DIVISIONS AND SUBSIDIARIES: AIRSUPPLY-AERO ENGINEERING • AIRESEARCH AVIATION SERVICE • GARRETT SUPPLY • AIR CRUISERS
AIRESEARCH INDUSTRIAL • GARRETT MANUFACTURING LIMITED • MARWEDEL • GARRETT INTERNATIONAL S.A. • GARRETT (JAPAN) LIMITED



All's Well at the Oil Well

Cabot knows its way around an oil field. Modern oil well pumping, drilling and servicing equipment bearing the Cabot name can be found in all the major drilling and operating fields throughout the world.

While Cabot oil well equipment pumps up new profits for some people, many, many others are discovering daily that Cabot has other ways of contributing to their liquid assets. For instance: the rapidly expanding line of quality Cabot raw materials, now assisting industry the wide world over in producing better and more profitable products including:

For Industry, from Cabot:

CARBON BLACK — the world's most complete range . . . more than 50 different grades, each with a specific industrial use.

CAB-O-LITE® (Cabot wollastonite)—as a paint pigment, this versatile, uniform calcium silicate has more desirable properties than other extenders used singly or in combination. Excellent for all types of paint, and for all types of ceramics.

PT® PINE TAR PRODUCTS — these versatile quality controlled materials improve the performance of a wide variety of products, in-

cluding: rubber, paint, cordage, oakum and insecticides.

CAB-O-SIL® — this unique airborne silica, in extremely small amounts, greatly improves an enormous variety of products. Remarkable for its unusual combination of properties, it's equally effective as a thixotropic, thickening, gelling, suspending, flattening, reinforcing, anti-caking, and antislip agent. Used in plastics, lubricating oils, greases, paints, varnishes, lacquers, rubber, sulfur, insecticides, pharmaceuticals, cosmetics, and many other products.

OTHER PRODUCTS INCLUDE: CHARCOAL, CHARCOAL BRIQUETS, OIL, NATURAL GAS, NATURAL GASOLINE, LIQUEFIED PETROLEUM GASES, PORTABLE WELL DRILLING AND SERVICING EQUIPMENT, OIL FIELD PUMPING EQUIPMENT AND STEEL FABRICATION.

For complete information, phone or write:

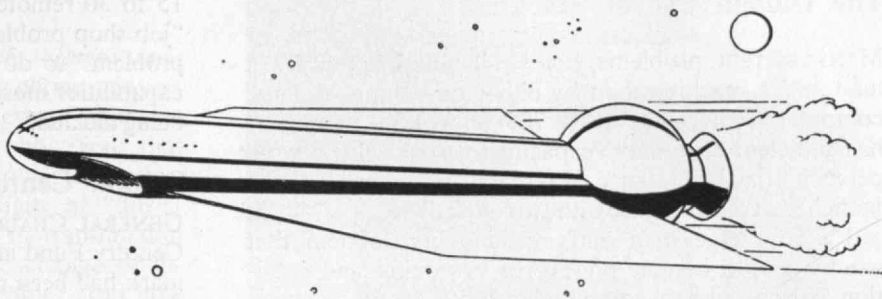


CABOT CORPORATION 125 High Street, Boston 10, Mass.

Cabot — an internationally known producer of chemicals for industry.



Trend Of Affairs



The Centennial Celebration

THE WORLD'S ATTENTION will be drawn to M.I.T. this month by events arranged to observe the Institute's 100th anniversary.

The Right Honorable Harold Macmillan, Prime Minister and First Lord of the Treasury, United Kingdom of Great Britain and Northern Ireland, and Chancellor of Oxford University, will deliver a major address at the Institute on Friday evening, April 7. Mr. Macmillan has headed his country's government since the resignation of Sir Anthony Eden in 1957 and has been a tireless worker in the efforts to prevent the tension between the Western World and the Communist World from leading to armed conflict. Mr. Macmillan will confer with President Kennedy in Washington before coming to Cambridge, and is expected to go on from this country for conferences in Ottawa.

Chairman James R. Killian, Jr., '26, of the M.I.T. Corporation, will speak on Saturday evening, April 8, when official delegates to the Centennial Convocation and hundreds of Alumni and friends of the Institute will dine simultaneously in several different halls.

President Julius A. Stratton, '23, will be the principal speaker the following Sunday afternoon at the Centennial Convocation in the Rockwell Cage. There will be an academic procession on this occasion, and the M.I.T. Choral Society will present a centennial concert that evening.

Mr. Macmillan's address will be given at one of a series of general assemblies in the Rockwell Cage. In other assemblies, Secretary of State Dean Rusk will speak, and Professors Max F. Millikan, Martin Deutsch, Elting E. Morison, and Walter A. Rosenblith will summarize the findings of an International Conference on Scientific and Engineering Education. About 100 of the world's most distinguished scholars will have arrived on campus by April 3 to participate in this closed conference.

Centennial visitors will choose between hearing three panel discussions in the forenoon on Saturday, April 8, and three others in the afternoon. These will deal with:

How Has Science in the Last Century Changed Man's View of Himself?

The Future of the Arts in a World of Science.

The Future in the Physical Sciences.

Arms Control.

The Life of Man in Industry.

The Future in the Life Sciences.

Participants in these panel discussions will include several Nobel laureates, the 1961 Atoms-for-Peace Award winner, a number of eminent business leaders and noted authors, and outstanding members of the faculties of some of the many universities that will send greetings to M.I.T. on this occasion.

Dean John E. Burchard, '23, of the M.I.T. School of Humanities and Social Science, has directed the arrangements for these and other Centennial events.

Student Centennial Affairs

STUDENTS of the Institute have arranged additional Centennial festivities to follow the general assemblies and ceremonies described above. On Monday, April 10, they will attend a Founder's Day Convocation at which leading members of the Faculty will speak.

Then, on Friday and Saturday, April 21 and 22, the merrymaking for which many students are growing beards will take place. First, the students expect to hear a lecture delivered in the style of those given in 1861. Then, on Saturday morning, they plan to board a train at Vassar Street for an all-day excursion to Sturbridge Village. Their train will have an old-fashioned observation car, and brass and Dixie Land bands aboard. After an afternoon of intramural contests of various kinds at Sturbridge, the students will return for more jazz on Saturday night in the Rockwell Cage.

Reports to the Council

AT THE M.I.T. Alumni Council's 350th meeting on February 27, Gordon L. Brownell, '50, Assistant Professor of Nuclear Engineering, reviewed the history and rationale of treatments given to eight human patients thus far with the nuclear reactor at the Institute. He emphasized the newness of such therapy, the difficulties encountered, and the time that must yet elapse before its effectiveness can be judged. One such treatment is described on page 25 of this issue of *The Review*.

Robert E. Hewes, '43, Registrar, described progress to date in using a large electronic computer to keep student records and schedule classes, and pointed out how students given advanced placement when entering the Institute as freshmen have complicated class scheduling. William L. Taggart, Jr., '27, presided.

The drawing above is of Orion, a proposed 73,000-ton space vehicle, pictured by Henry B. Kane, '24, in a new book by David O. Woodbury, '21 (reviewed on page 30).

The Human Use of Machines

MANY current problems can be handled better by a man and a machine than by either one alone. A large computer such as the IBM 709 at M.I.T., moreover, has sufficient speed and capacity to work with several persons at a time. Hence, a research program has been launched at the Institute with two objectives:

1) To merge man and machine in a system that would couple human powers of reasoning and intuition closely with a computer's ability to process vast quantities of information very fast.

2) To permit many persons, in distant classrooms, offices, or laboratories, to work with the same computer almost simultaneously.

Herbert M. Teager, '52, Assistant Professor of Electrical Engineering, is directing this work. Nearly equal grants from the National Science Foundation and the Office of Naval Research have provided \$160,000 for the first two years' work on the program. Plans for the second two years call for a budget of \$500,000 and the development of new equipment.

In announcing the program, Philip M. Morse, Director of the M.I.T. Computation Center, pointed out that the position of a large computer now is somewhat analogous to that of a busy executive. Hundreds of persons are continually clamoring for appointments and demanding partial or complete answers to many different problems. As in a business organization, a staff is needed and rigid scheduling is necessary. This, however, frequently prevents scientists and engineers from working as closely with a computer as they would like and sometimes retards their progress.

"The research worker or the student learner," says Professor Morse, "should be able to ask the machine a question, get the answer quickly, and go on without having to relinquish his place at the machine to give the next man a chance. With present equipment for getting information into and out of the machine, a research worker must turn in his request to the machine operator, who runs it along with many other requests from other users. The worker must wait until all of the problems are run and tabulated to get his answer and think about what the next question should be."

In the M.I.T. system now envisioned, users will communicate directly with a computer from special substations linked to the machine by cables. In addition to an operating console, these substations may have auxiliary devices, such as a "drawing pad" for the man's use and a visual display device on which the computer can produce graphs.

"In all but the most trivial cases," Professor Teager observes, "human judgment can be invaluable in helping the machine to develop 'common sense' rules for particular problems—if the human is in a position to see what is going on and get a feel for what is important. As of today, at least, people are far better equipped to draw on their past experiences, to recognize abstract patterns, to generalize and to unify, whereas a machine is in a much better position to seek out, work on, and turn out information. The best features of both have yet to be effectively matched as a closely meshed team."

An IBM 7090 is scheduled to arrive at M.I.T. next January, and plans are being formulated to link from

15 to 30 remote substations to it. How it can solve its "job shop problem," and schedule "how much of which problem" to do at a time in order to utilize all of its capabilities most effectively is part of the problem now being tackled.

Second Century Fund Progress

GENERAL CHAIRMAN John J. Wilson, '29, of the Second Century Fund announced in February that the halfway mark had been reached in the campaign now under way for \$66,000,000 for M.I.T.

Gifts which made this possible included an unrestricted \$500,000 grant from The Martin Company of Baltimore, which set an example for other companies by greatly enlarging its participation in the Industrial Liaison Program.

"We are particularly gratified that The Martin Company, which is well known for its leadership on the frontiers of technology, has seen fit to provide such handsome support for our Second Century Program," said Chairman James R. Killian, Jr., '26, of the M.I.T. Corporation. "Increasingly, large companies have become aware of the importance of supporting education as a means of furthering industry's technological and managerial needs and, more vital still, our national interest. America's future economic strength, as well as its national security, depends upon technological leadership. We now face, as never before, able, alert and determined competition from abroad, plus the domestic challenge of maintaining a growing economy, an increasing standard of living, and an unmatched productivity."

Worcester, Mass., was the first area in the country to exceed its alumni major gifts quota (\$68,900) when it reported pledges of \$80,100. Thomas H. West, '22, headed the Major Gifts Committee in the Worcester area and was assisted by Robert H. Brown, '22, Robert T. Dawes, '26, Frederick N. Dillon, Jr., '22, Bernard S. Falk, '23, Haskell R. Gordon, '38, Herbert L. Hayden, '23, Mac Levine, '25, John C. Molinar, '22, Myles Morgan, '23, George R. Wallace, '13, and Ernest P. Whitehead, '20.

In congratulating them, Mr. Wilson told them: "Your area's outstanding record will encourage fellow Alumni—hundreds of them who are working from coast to coast. We are confident that in the coming days and weeks, similar reports will be flowing into SCF headquarters from many parts of the nation."

Other areas from which impressive progress has been reported include Louisville, Ky., Rochester, N.Y., Springfield, Mass., Houston and Beaumont, Texas, and Wilmington, Del. Solicitation of major gifts has been emphasized thus far in the campaign.

Creative Engineering's Day

THE NEXT YEAR will bring exceptional opportunities for creative engineers, William E. Vannah, '46, editor of *Control Engineering*, predicted in a recent talk to Philadelphia members of the American Institute of Electrical Engineers and the Institute of Radio Engineers. "American industry has funds for investment and will allocate them to more efficient and more automatic operations," he said. "Schedules for construction are sufficiently tempered that the engineer will have time for conceiving and applying innovations."

ADDERs and Errors

PEOPLE can understand telegrams even though some letters within words are wrong, and a phone conversation may be satisfactory without every phoneme being transmitted perfectly. Suppose, however, that one computer is communicating with another computer, in the two-symbol language (binary digits or "bits") that they employ: Might not an error in transmission then be far more serious than if the exchange of information were taking place between people? And how often, in fact, do errors occur when digital information is being transmitted?

Codes have been devised to detect errors in digital communications. But what degree of assurance of error detection can be achieved in a practical and economical working system?

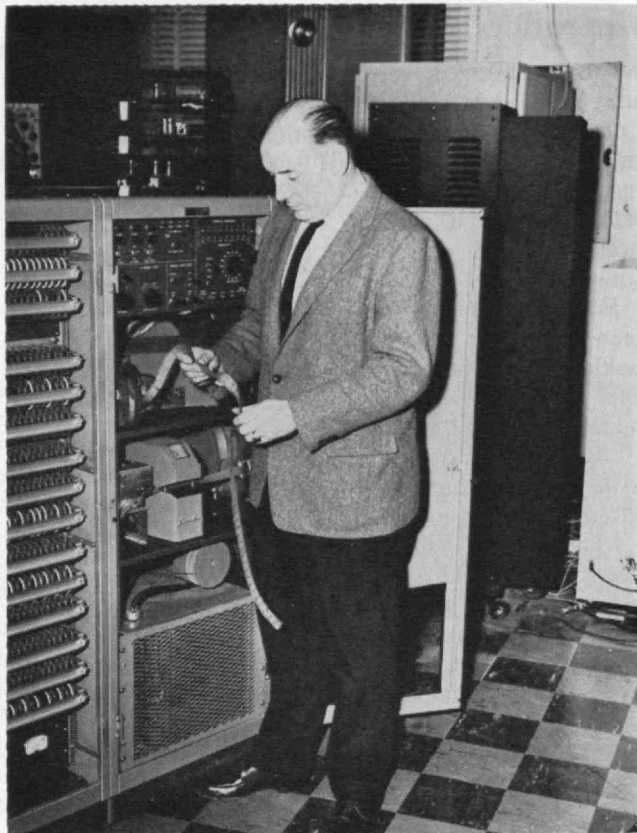
Lincoln Laboratory has long been deeply interested in these questions because vast amounts of digital data must be transmitted long distances in air defense and other communication networks now being set up. Toll-grade telephone circuits frequently are used for this purpose because they are relatively plentiful and cheap. They have been studied in great detail and this winter the Laboratory reported some impressive progress toward the application of the sophisticated error-detection coding techniques of information theory to large networks of such circuits.

Lincoln's communication specialists have found that, for example, when from 1,500 to 2,000 bits of information per second are being transmitted over toll-grade telephone lines, errors occur about once a minute on the average. But the frequency with which such errors can slip by without being caught can be reduced. By employing a system in which one-tenth of the channel's capacity is taken up by "check bits," the average interval between undetected errors can be extended to about 300 years. And by increasing the proportion of check bits slightly, still greater assurance that transmission errors will be caught can be obtained. Even the danger that a spurious input of random noise for a considerable period of time will distort the meaning of the message can be reduced greatly.

To find out how often transmission errors really occurred in actual circuits, the Laboratory developed an Automatic Digital Data Error Recorder. It was dubbed the ADDER, naturally, and put to work collecting carefully documented error statistics regarding 6 billion bits of digital data transmitted over the circuits of interest. These findings then were used to evaluate various proposed coding schemes with a computer.

Coding and decoding equipment now has been built that will detect errors in an actual system. The method employed was described this winter in a paper prepared for the American Institute of Electrical Engineers by Barney Reiffen, W. G. Schmidt, and H. L. Yudkin, '59, of Lincoln Laboratory.

Much of the theoretical work which preceded the development of this equipment was done at M.I.T. The error-detection code used in this particular system was worked out by R. C. Bose and D. K. Ray-Chaudhuri of the University of North Carolina; the method employed to apply the mathematics of the code in a working system was suggested by W. W. Peterson of the University of Florida; and it was synthesized in a



Ronald G. Enticknap examining the ADDER's output.

computer simulation by A. B. Fontaine of the University of Wisconsin and R. G. Gallager, '57, Assistant Professor of Electrical Engineering at M.I.T. From basic theory to proven practice, this development was accomplished in one year's time, once the store of error data had been acquired.

The ADDER, meanwhile, has been given new assignments: SHAPE's Air Defense Technical Center is using one to test tropospheric scatter circuits, and other ADDERs are being used to check out a circuit from Cape Canaveral to the NASA computing center at Beltsville, Md., for Project Mercury.

The Aussie Radio Fellowship

LIKE a boomerang, an FM radio came back again this spring to Paul M. Chalmers, M.I.T. Adviser to Foreign Students. It first belonged to George J. Haggarty, '57, who left it behind when he flew home to Australia four years ago. Since then Robert G. Sutton, '58, Francis R. McCloskey, '60, and John Robert Roy, '61, have used it while at the Institute and it is now awaiting a fifth Australian claimant. All holders of the Aussie radio thus far have received master of science degrees at the Institute.

A Doctorate in Linguistics

STARTING next fall, the Department of Modern Languages at M.I.T. will offer a program leading to the degree of doctor of philosophy in linguistics. The fields of concentration will include general linguistics, structure of English, structure of Russian, phonology, speech analysis, and machine translation. Interdisciplinary programs of various kinds will also be available within the communication sciences.

Mathematics of Black Jack

IN BLACK JACK, a very old game, about 34,000,000 subsets of cards may turn up, the rules may vary, and a player may have various options. The game has cost many men their shirts, and experts have long debated whether a winning strategy could or could not be devised.

Four men at the Aberdeen Proving Ground tackled its mathematics a few years ago with desk calculators and produced a book, *Playing Black Jack to Win*,* that is now out of print. It contained a strategy chart—showing when one should split a pair, when to double down, and when to draw or stand pat—and discussed insurance bets and other aspects of the game. If one followed their strategy, these men wrote, one's money would be likely to last longer in a casino than if one rolled dice or played roulette, but they concluded, "the player cannot beat black jack."

Edward Thorp, instructor in Mathematics at M.I.T., read about their work, recalled that gambling problems had contributed to the growth of probability theory, and noted that the Aberdeen men only had desk calculators. He saw that they, consequently, had made assumptions and simplifications that would not be necessary with a large computer. He saw, too, that these could change the solution. With a large computer, he then found a strategy favorable to the player.

One of their assumptions was that each deal was from a complete deck. Taking the cards already played into account, Dr. Thorp found, would appreciably increase a player's chances of winning. Knowing the spectrum of expectancies in various situations, moreover, would enable one to increase those chances still more by varying the size of one's bets. He discovered, too, that the rules varied slightly from casino to casino, and that these variations could affect one's chances to a small but calculable extent.

Instead of dashing to Las Vegas (he had been there before doing this), Dr. Thorp prepared a paper for a mathematicians' meeting in Washington. It neither spelled out a get-rich-quick secret nor recommended a casino. It did emphasize that a large computer's answer to a theoretical problem, to which the best answer available previously had been negative, was positive. A computer, said Dr. Thorp, could be programmed to play an almost perfect game of black jack. Even if the bets were of a constant size, he said, the computer would have an advantage, and if it could vary its bets it would have an overwhelming advantage.

This paper, entitled "A Favorable Strategy for Black Jack," brought Dr. Thorp a flurry of publicity and he suddenly found himself an extremely popular fellow.



Edward Thorp

Societies in Transition

THE M.I.T. Center for International Studies has received a \$475,000 grant from the Carnegie Corporation for "Research and Training on the Politics of Transitional Societies." This grant will make it possible to expand the Center's study of "nation-building" in Africa and Asia. It will bring visiting scholars to the Center and establish graduate fellowships both for course work at M.I.T. and for field work toward the doctoral thesis. Sociologists, historians, economists, political scientists, and anthropologists are expected to participate in the Center's work as graduate students, postdoctoral fellows, professional researchers, and Faculty members.

The Center's recent work, which will set the pattern for an expanded program, has included a study of Indian economic development, the postwar evolution of Indonesian society, the nature of Burmese politics, and economic and political changes in Nigeria, Guinea, the Central African Federation, and the Republic of Congo.

"The Center's research is intended," says its Director, Max F. Millikan, "to contribute both to our basic understanding of human behavior and to the solution of some of the long-term problems of international policy which confront decision makers in government and private life. . . . We believe that the scholar can be of unique assistance to both American and foreign policy makers."

Men Behind the Minuteman

WHEN the Minuteman ICBM passed its first test brilliantly at Cape Canaveral on February 1, Air Force Chief of Staff General Thomas D. White hailed it as "one of the most significant steps ever taken toward gaining intercontinental missile supremacy."

Richard F. Cottrell, '41, David F. Sprenger, '48, and Carle C. Conway, '53, played key roles in the Aerojet-General Corporation's development of this missile's second-stage engine. As manager of the Minuteman Program, Cottrell directed the task force of nearly 2,000. As manager of Solid Rocket Development, Sprenger was concerned with this project from the beginning. And as chief engineer of the Minuteman Program, Conway made significant contributions to the design of the engine.

In press statements: Cottrell emphasized that the engine was designed for mass production. Sprenger recalled that such design features as "movable nozzles, high-strength steel cases and high-impulse propellant cast in a novel grain configuration . . . were no more than ideas at the initiation of the program." And Conway observed that the solid rocket typified by this engine "is unique in that, once development problems are recognized and solved, they stay solved."

Recommended Reading

FORTUNE MAGAZINE hailed M.I.T. as "the greatest school of its kind" on the cover of its February issue, and featured a six-page article by Lawrence Lessing entitled "M.I.T. and the New Breed of Hairy Ears." The article described the new demands on engineers, the changing curricula at M.I.T., and the Institute's past and present services to the nation.

*By Roger B. Baldwin, Wilbur E. Cantey, Herbert Maisel, and James P. McDermott, with a foreword by Charles Van Doren (M. Barrows and Company, New York).

Education, Technology & the GNP

Two-fifths of the growth in our national product came mainly from what goes on in men's heads

BY ROBERT M. SOLOW

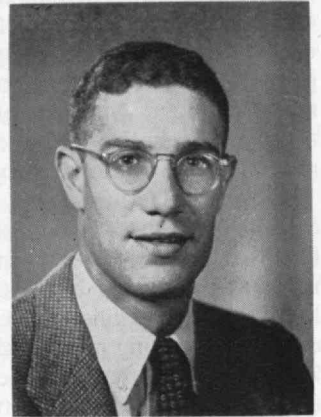
BUSINESSMEN think of productivity as increasing when they find a way of reducing the number of men it takes to operate a particular machine without any bad effects on its output, or a way of increasing the output of a machine without additional labor. In addition to such developments, we must include a lot of other things—some of them strange but all of them inevitable—to measure the productivity of the whole national economy.

Imagine the American economic system as having a blank wall around it, so you can't see what really happens inside. All you can observe is that each year certain *primary inputs* are fed into this economy. These are goods and services which are not part of the economy's current output; the main ones are labor services of different kinds and levels of skill, land and natural resources of various qualities, and pre-existing capital equipment—all kinds of new and old buildings, machines, and inventories which represent the cumulated past savings of the population. These things are fed into the economy each year and it grinds away and produces some *final output*.

The conventional classification of final output is into personal consumption (food, clothing, automobiles, haircuts, toys), private investment (the additions to capital equipment and inventories which will become the primary inputs of next year), and government expenditures on goods and services (items we choose to consume as a community rather than individually, such as Atlas rockets and the services of school teachers). The productivity of the national economy increases whenever this flow of final output grows larger without any corresponding increase in its cost in terms of primary inputs, or whenever final output grows faster than primary inputs.

This is not a simple notion. The final output is an assortment of widely different goods and services, ranging from jet aircraft to left-hand-hitting first base-

ROBERT M. SOLOW, who is pictured at the right, received his doctorate from Harvard and has taught at M.I.T. since 1949. This article was part of a recent talk on "Productivity and National Performance" during a meeting of principal officers of companies participating in M.I.T.'s Industrial Liaison Program. Professor Solow's wit, as well as his scholarship, has won him an en-



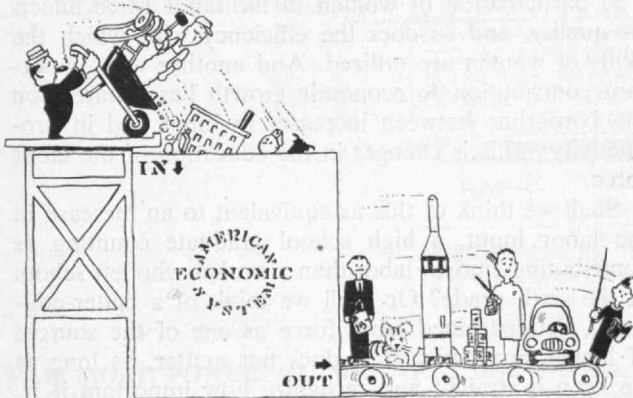
enviable reputation at the Institute. He is now serving on the President's Council of Economic Advisers.

men. To reduce such heterogeneous items to comparability, the economist has to attach values to them and the values he uses are market prices. A tangible commodity and an intangible service are supposed to be worth what they bring in the open market. The market value of the whole flow of final output is called the Gross National Product (GNP); and when the effects of pure inflation or deflation of the price level have been eliminated, the resulting measure is called the Real Gross National Product.

Millions of Decisions

Valuing things at market prices means that some items which you or I might consider worthless or worse are counted as contributions to GNP. I happen to believe, for instance, that the automatic choke was an invention of the devil. But if an automatic choke on a car enables it to be sold at a higher price, the GNP increases when cars are equipped with them.

Other items such as legislation and justice are not bought and sold on the open market (though there have been some notable exceptions to this), so no current price is quoted. The economist has to value the services of such governmental agencies as courts and legislatures at the wage and salary costs incurred in operating them: The contribution to GNP of the nine Justices of the Supreme Court of the United States is measured by their combined salaries; and the contribution to GNP of the Louisiana State Legislature, engaged largely in frustrating the decisions of the Supreme Court, is valued at its salary bill. Such perversities, fortunately, are the exception rather than the rule, and when the real GNP increases faster than primary input the



chances are that the economic system has become more productive.

What we do with the annual flow of GNP depends on millions of private and public decisions. How much of it we consume sensibly or frivolously within families, how much we save and invest to create a higher GNP for our children, how much we spend collectively to provide schools, fire protection, national defense, foreign aid and snow removal—all this is determined by decisions made within families, by the boards of directors of corporations, and by voters and their elected representatives. It is no easy matter to understand why things have happened in the past the way they have, and even harder to predict how these things will turn out in the future. But whatever we want to do with goods and services, they can come only from our National Product. And our private and collective desires to do more in the future can be satisfied only out of growth of the National Product.

In principle, a rational and self-disciplined people could decide to satisfy its desire for more national defense and more private investment and more urban renewal by cutting back its own consumption. But it hardly even qualifies as cynical to suspect that the chances of getting more of those things are considerably improved if we can get them out of increases in National Product without putting pressure on consumption.

In any case it would seem important to try to find out how rapidly America's real GNP has increased in the past and what the sources of that growth have been. We can hope in this way to make a guess about how much economic growth we can expect in the future even though we do nothing special about it, and some hints about how we might accelerate that growth.

The Sources of Growth

Since 1929, the real GNP has grown on the average at a rate just under 3 per cent per year. That growth was far from smooth—in 1939 our economy had only regained the absolute level of output of 1929 in its long climb out of the depression. But a quantity growing at an average rate of 3 per cent a year will double in size every 24 years, and our present real GNP is about two and a third times what it was in 1929. This generation has about twice as much as the generation before.

In 1929, however, between 70 and 75 per cent of the GNP was used for personal consumption, and that percentage has fallen now to 65 per cent. Private investment has about held its own in percentage terms, and there has been a shift in the use of GNP from

personal consumption to collective consumption or governmental expenditures, primarily for defense.

If we are interested in the improvement of our potential standard of living, rather than in military potential or national grandeur or similar things, we should look at GNP per head of population. Since 1929 the population of the United States has grown about one and a fourth per cent per year. It follows that real GNP per head of population has increased by about 1.7 per cent per year, and is now about 60 per cent higher than it was in 1929. A quantity growing at 1.7 per cent per year takes about 42 years to double; by the year 2000, if present trends continue, real output per person may be about twice what it is now.

Even now the annual flow of goods and services available to serve our personal and collective needs could be substantially larger than it is without any economic growth taking place at all: Part of the civilian labor force is unemployed, more is on short time. The steel industry is using only a fraction of its capacity. We are, in short, in a recession and a lot of extra output could be had by improving the short-run state of affairs.

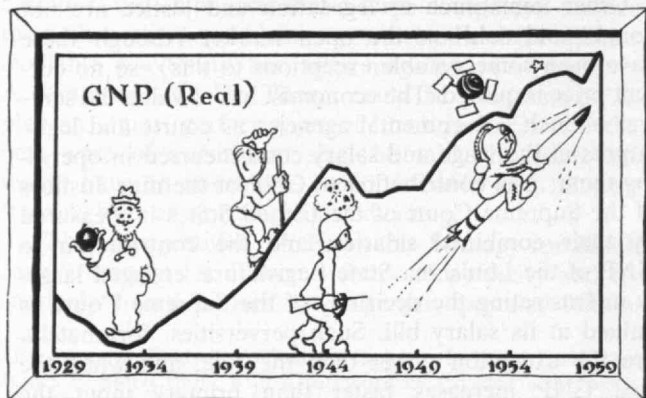
One of the best medicines for long-run growth is short-run prosperity. But leaving aside short-run slack, where can increased real output come from? Since national productivity as we have defined it is a ratio of final output to primary inputs, *extra output can come either from increased primary inputs or from higher productivity*. The line separating these two sources of growth is not a sharp one.

The Primary Inputs

Let's consider the primary inputs first. In the absence of territorial changes, the supply of land and natural resources doesn't change. (Although resources can be discovered and developed, this requires labor and capital.) But the input of labor can increase—and it has. The observed increase in the country's input of labor has been the resultant of several tendencies, some demographic and some more directly social.

There is an increase in employment when the population grows and also (as has happened since 1929) when the fraction of the population engaged in production increases. But this increase in the labor input has been partially offset by a reduction in hours worked per year. Changes in the demographic composition of the population make a difference, too: The labor supply changes in quality and quantity as the age distribution of the population shifts and as the level of health and strength improves. Social institutions matter, too: The participation of women in the labor force affects its quality, and so does the efficiency with which the skills of women are utilized. And another very important contribution to economic growth lies squarely on the borderline between increases in input and in productivity: This is changes in the education of the labor force.

Shall we think of this as equivalent to an increase in the labor input, a high school graduate counting as contributing "more" labor than a worker who left school in the sixth grade? Or shall we think of a better-educated, better-trained labor force as one of the sources of higher productivity? It does not matter, as long as we keep it straight and recognize how important it is.



The other great primary input is reproducible capital equipment: buildings, machines, inventories, vehicles, and the rest. One important way of getting increased output is by equipping the labor force with more horsepower, more capital, more of the fruits of saving. But here, too, we must draw a hypothetical line between changes in the *amount* of capital used in industry and improvement in the *quality* of capital goods. The latter ought properly to be counted as a source of increased productivity; most new processes need to be embodied in a new type of capital equipment, and a high rate of investment increases the speed with which technological inventiveness gets built into production.

Factors in Productivity

Coming now to improved productivity as a source of economic growth, there are at least three general categories: One has already been mentioned—ordinary technological progress, new products, new methods, new ideas, the results of research and inspiration. Secondly, a gain or loss in productivity may stem from improved or worsened economic organization. I have in mind such things as monopolistic restrictions, certain kinds of union rules, barriers to the flow of goods, immobility of labor and resources, and practices imposed either privately or by government. A third possibility, known to Adam Smith, is that the sheer increase in the size of the economic system may yield economies of scale by permitting greater specialization and division of labor and allowing goods to be produced in plants of optimal size. If you believe that the “ultimate”

source of productivity is the American Family, or the Democratic Way of Life, or the Republican Party, you may be right. But the ultimate causes must work through one of these proximate sources.

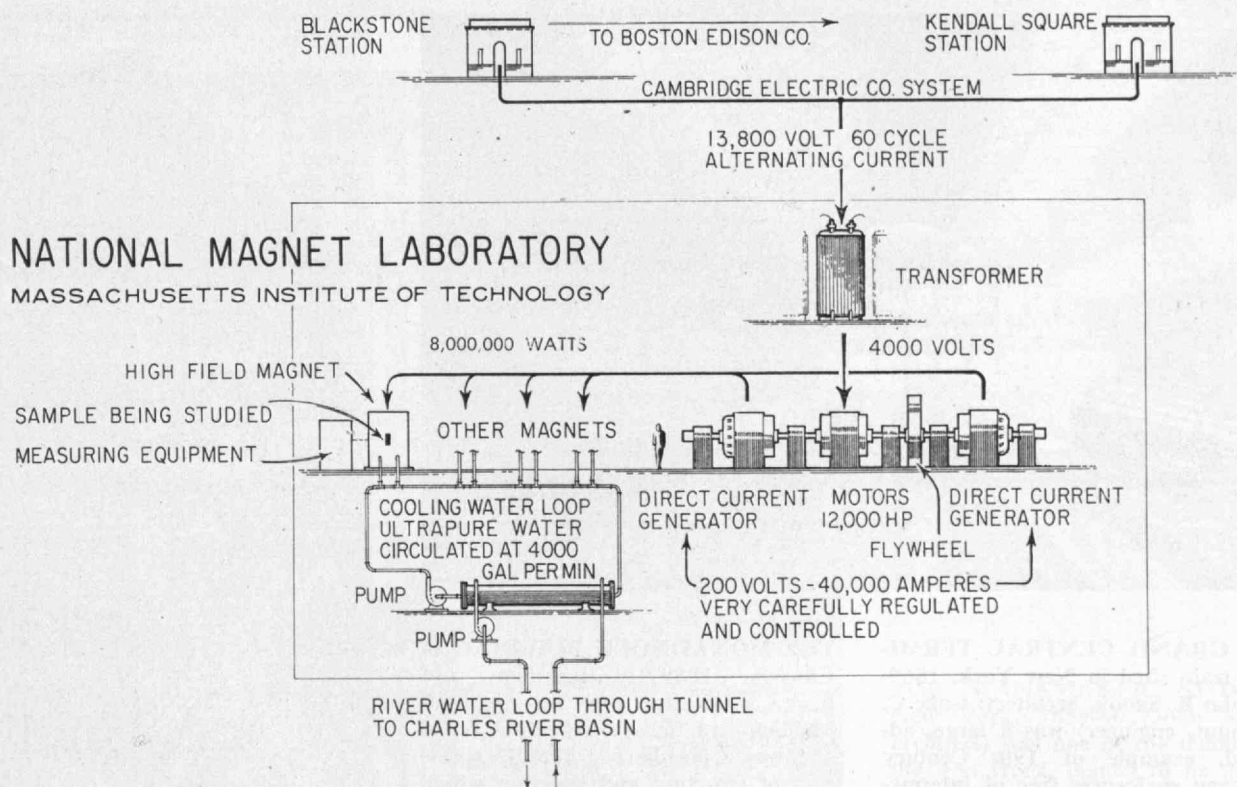
In what proportions has economic growth since 1929 come from each of these sources? This is no simple matter and a lot of guesswork and assumptions have gone into answering this question. I've tried my hand at it and so have many others. The figures I am going to give you come from a recent study by Herbert Stein and Edward Denison (both of the research staff, Committee for Economic Development), which is more complete than anything else done along these lines.

Remember that the real GNP has grown by about 3 per cent per year since 1929. About one-third of that growth, or one per cent per year, is attributable to increased employment. (Employment rose about 1.3 per cent per year but without accompanying investment, etc., could only increase output by one per cent per year.) Shorter hours canceled about one-fifth of this growth. So altogether, the increase in labor input was responsible for about eight-tenths of one per cent of the total growth rate of 3 per cent per year. Stein and Denison add to that a contribution of a tenth of one per cent from changes in age and sex composition and better utilization of women workers. Thus we account for growth of nine-tenths of one per cent per year, or 30 per cent of the observed growth rate of 3 per cent.

Investment was the source of growth at the rate of a bit over one-half of one per cent a year, accounting

(Continued on page 34)

How Greater Magnetic Fields Will Be Provided for Future Research



FAR MORE POWERFUL MAGNETS than ever were available before are being built at M.I.T. under a \$9,502,000

contract with the Air Force. This drawing by Percy Lund is based on plans now taking shape for the new facility.

A Century of American Building

Landmarks shown in the M.I.T. Centennial Exhibit disclose how materials, structure, and aesthetics have influenced architecture

BY MARTIN MANN, '41

THE PICTURES on these pages were selected from an unusual display, created especially for M.I.T.'s Centennial celebration, that traces a century of American building. Each photograph shows a landmark in architecture—a combination of materials, structure, and aesthetics which has influenced the buildings we now live and work in.

The display, planned by Professor Carl W. Condit, the Northwestern University architectural historian, analyzes the way new materials and engineering techniques were adapted to new needs. It covers nine periods from pioneer works and early skyscrapers to the revolution in concrete that is now under way.

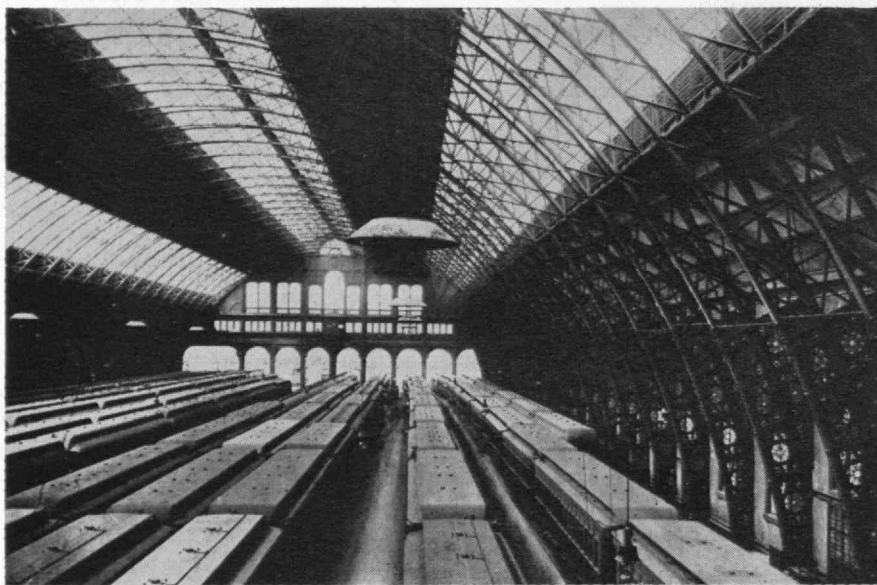
Among the few small buildings that

Professor Condit included is St. Mary's Church, built in 1833 in Chicago by Augustine Taylor. Taylor pioneered the balloon frame that is still standard for most homes. Instead of heavily braced posts and beams, he combined light but closely spaced studs and siding into a stressed skin—strong but easily and quickly nailed together by a moderately skilled carpenter. This simple system became practical in the early 1800's because of two related developments: sawmills to provide economical cut lumber and machines to mass-produce cheap nails.

At almost the same time that homes shifted from a curtained skeleton to uniform load-bearing walls, the design of large buildings began to move the other way. A basic reason again

was materials: cast-iron and, later, steel beams and columns. They made possible the big-windowed, spacious and tall structures that rapidly expanding American cities demanded. The first American building constructed entirely of cast-iron was James Bogardus' factory, which went up in New York City in 1848-1849. Even in exterior treatment, it foreshadows such modern monuments as Seagram House (designed by Ludwig Mies van der Rohe and Philip Johnson), which Professor Condit flatly calls "the finest . . . contemporary skyscraper."

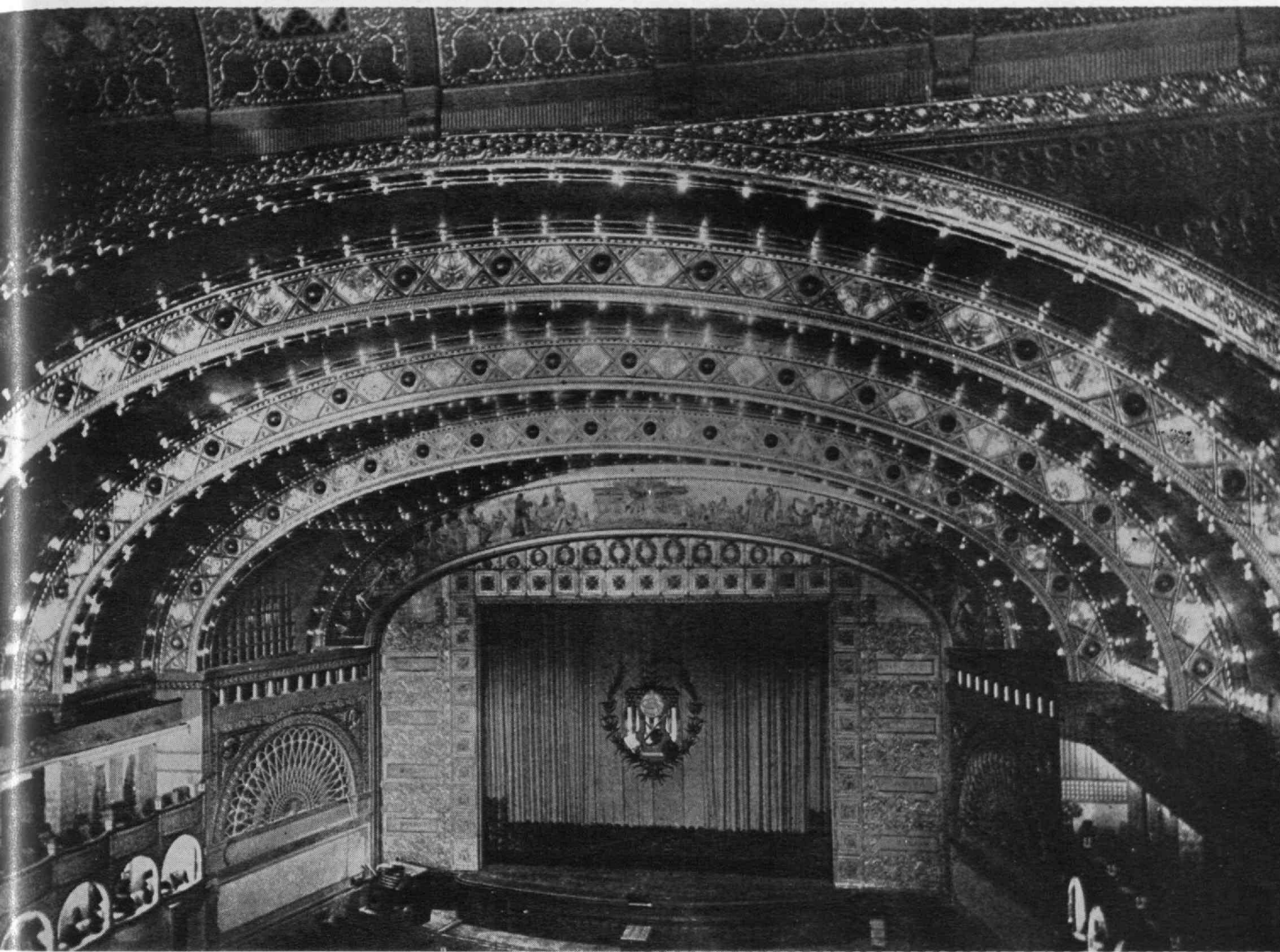
Most recently, architects have been achieving radical results with two different—almost opposite—techniques. On the one hand they have exploited
(Concluded on page 23)



THE GRAND CENTRAL TERMINAL train shed in New York, 1869-71 (John B. Snook, architect; Isaac C. Buckhout, engineer) was a large, advanced, example of 19th Century wide-span enclosures free of intermediate supports. It was based on European precedents.

THE MONADNOCK BUILDING in Chicago, 1889-91 (Burnham and Root, architects) was the last tall building with masonry bearing walls, and was a peculiarly forceful expression of structure and function which relies on simple geometric form for its effect.





THE AUDITORIUM in Chicago, 1887-89 (Adler and Sullivan, architects) was the first of the masterpieces of Louis H. Sullivan, '74, America's most creative architect. It consists of three distinct parts integrated into a single volume: The great theater stands between a hotel on the east and an office block on the west. Every structural device available to its planner was called on, but none of this intricate structure is visible from the interior. Sullivan treated the interior spaces as open volumes enclosed by richly ornamented planes or by the curving surfaces of elliptical vaults.

THE WANAMAKER STORE in New York, 1859-60 (John Kellum, architect) was one of the triumphs of the iron front, thanks to its pleasing proportions, the vigorously articulated pattern of the columns, beams and arches, and the deep-set windows.



THE CARSON PIRIE SCOTT store, 1899, 1903-04, 1906 (Louis Sullivan, architect) marked the high point of the functional tradition in the Chicago school and is the foremost American example of the transforma-

tion of utility and structure into powerful architecture. The great cellular screens along the streets are derived directly from the steel cage behind them. Such a treatment of the elevations is the distinguishing mark

of the Chicago school. The interplay of tension and compression, of thrust and counterthrust, is given intensified expression by subtle but effective means. It stands on one of the nation's busiest shopping corners.

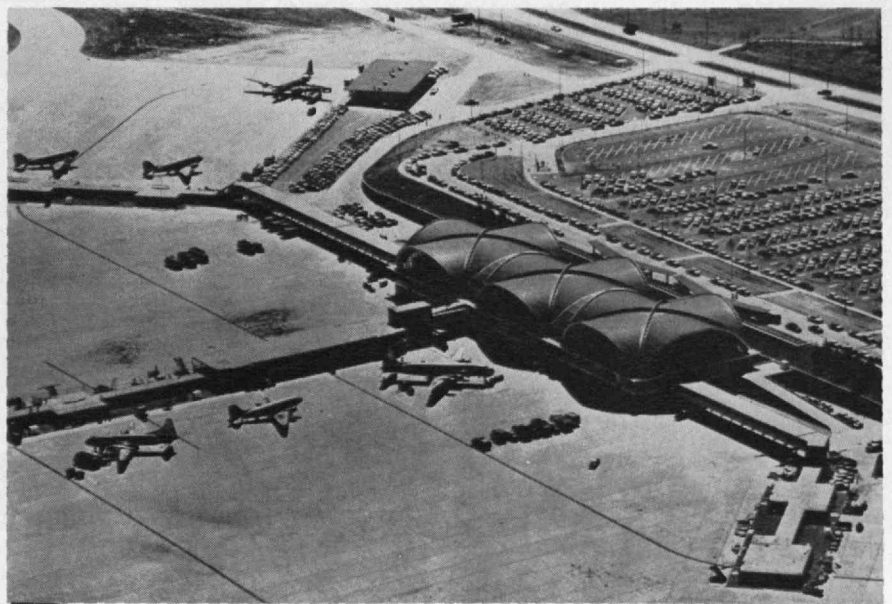
the tremendous strength of metals under tension: cable-suspended roofs, and huge buildings made of light metal grids such as Unistrut, Mobilar Space Truss or Geodesic Dome. The repair shop of the Union Tank Car Company, at Baton Rouge, for example, is a Geodesic Dome big enough to cover a football field (with room to spare). Yet it is made of only 567 tons of simple hardware assembled with hand tools.

In the opposite direction is a renewed use of concrete—a material of almost no tensile strength. Improved techniques of reinforcement, and of adding strength through shape, have led to such magnificent buildings as the multi-domed terminal at Lambert Field in St. Louis.

Some of the buildings to be shown in the display are pictured on these pages, with captions based on Professor Condit's comments. He describes the Seagram Building (at right) as a "delicate prism of amber glass."

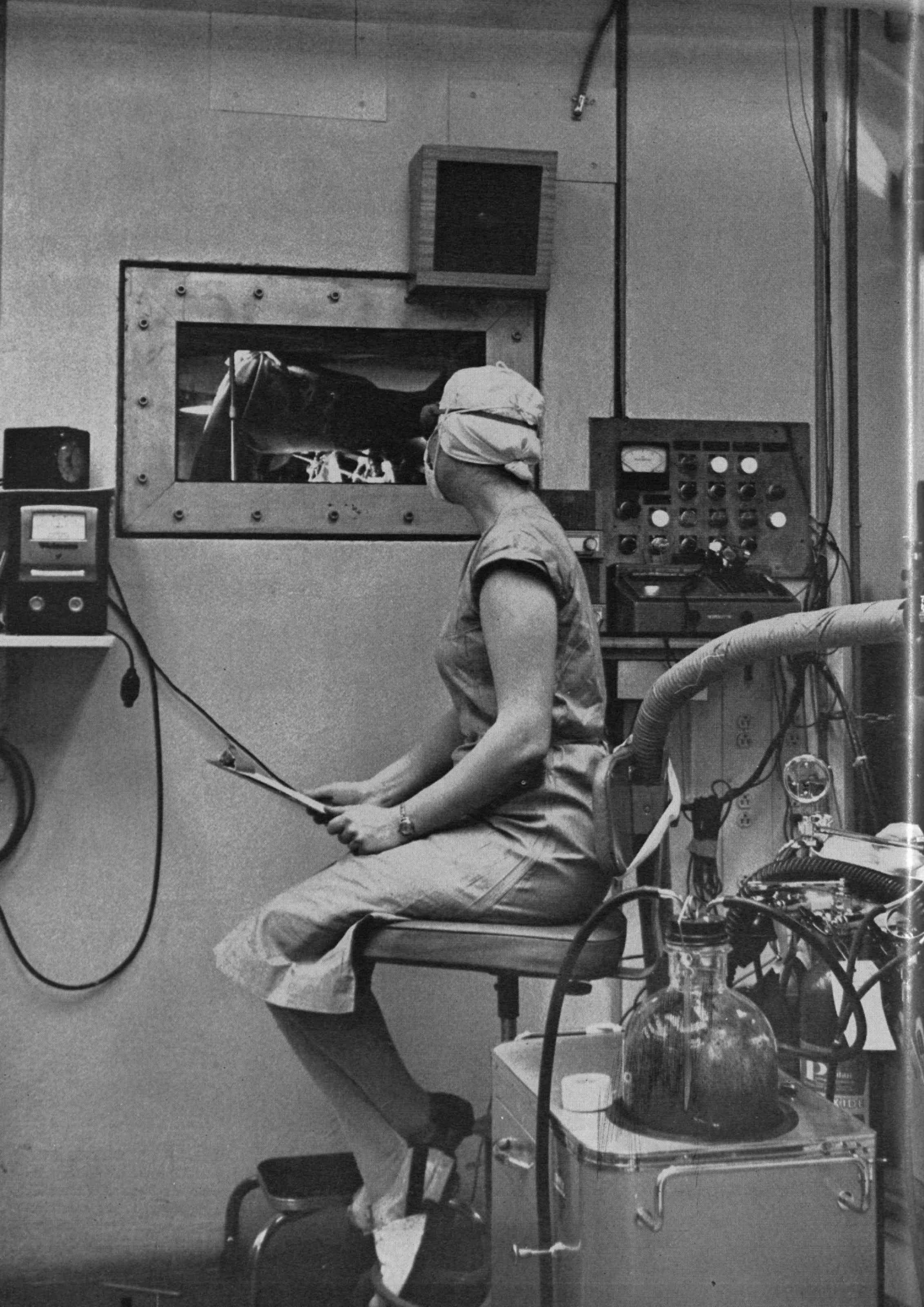
The display, to be set up in the lobby at the Massachusetts Avenue entrance to M.I.T., was designed by Herbert Matter of New York City.

SEAGRAM HOUSE in New York, 1956-58 (Ludwig van der Rohe and Philip Johnson, architects; Severud, Elstad and Krueger, engineers) has a plaza associated with it, as do many of the newer high office buildings, to provide welcome open space.



THE GUARANTY BUILDING in Buffalo, 1894-95 (Adler and Sullivan, architects) is one of Sullivan's best known buildings. It provided the steel-framed skyscraper with a dynamic form.

THE ST. LOUIS AIRPORT TERMINAL, 1954-55 (Helmuth, Yamasaki and Leinweber, architects; William C. E. Becker, engineer) is the most impressive dome-like structure built so far in the United States.



A Day Beneath the Reactor

BY PAUL STERANKA

SEVERAL patients with malignant brain tumors have been treated this past winter at the M.I.T. Reactor on Albany Street. The nature of the disease is such, however, that it will take years to determine the results of the treatment. Simply calibrating some of the equipment used in the medical room took two years, before the first patient was treated.

Paul Steranka, '60, a graduate student in nuclear engineering, wrote this account for *The Review* of a treatment which he witnessed. In this treatment, neutrons produced by the reactor were directed at cancerous tissue containing a boron compound. The boron atoms then gave off alpha particles with great energy, which it is hoped destroyed the cancerous cells selectively without harming neighboring normal cells.

A GRAY AMBULANCE from the Massachusetts General Hospital backs slowly through the outer doorway to the M.I.T. Nuclear Reactor building. The outer door mechanically seals before Larry Ristuccia, a reactor technician, presses a button to open the inner door of the set of doors designed to maintain the reactor building at slightly sub-atmospheric pressure.

Two attendants emerge from the ambulance and swing open its rear. A doctor helps them pull out the stretcher, revealing the somber face of a 20-year-old girl. Although conscious, she has received medication and blinks frequently. The girl glances at the large structure in the center of the huge, domed room, while being wheeled across the room and onto the elevator. Only the whirring of its motor breaks the silence as the elevator descends. It is 8:30 A.M.

The stretcher is taken from the elevator into the adjacent L-shaped anteroom and there is a low hum of voices as numerous people make preparations. Joan Koepcke, the head nurse, prepares drapes and linen, hurriedly moving equipment into the medical therapy room, a small 10-by-15 foot room directly underneath the reactor. Judy Gates helps her, and Kate Hambro, already inside the medical therapy room, rapidly arranges myriads of surgical instruments. Three anesthesiologists, Drs. Don Todd, Sertia Walzer, and Dennis Surtees, prepare the anesthetic apparatus. Orderly Rocky Morris stands by the patient and Dr. Robert Ojemann,

The assistant superintendent of operating rooms at Massachusetts General Hospital, Joan Koepcke, watches at the observation window of the M.I.T. Nuclear Reactor while a patient's brain tumor is treated with a beam of neutrons. The recipient of therapy, alone in the operating room, is receiving anesthesia and the reactor is operating normally. Other research work proceeds as usual on the floor above.

Irradiation of a brain tumor with neutrons is a delicate, lengthy task, which calls for the knowledge and skills of many well-trained specialists

resident surgeon at the Massachusetts General Hospital, talks briefly with the girl. A white stocking cap covers the girl's head.

"Did you have a good night's sleep?" Joan Koepcke asks the patient.

"Yes, but I woke up too early this morning," she answers clearly, her eyes closed.

"Even after all those pills I gave you?" Dr. Todd comments.

On one side of the room, Professor Theos J. Thompson, designer and director of the M.I.T. Research Reactor, discusses the day's work with Dave Lanning, its operating superintendent. Dr. Harriet Hardy, Assistant Medical Director of the M.I.T. Medical Department, stands in a group with Dr. Martin Lubin and Costa Maletskos, biophysicists. Sam Levin gestures to Ed Karaian and Pat Coggio, who return from the medical therapy room, radiation counters in hand—they are members of Radiological Safety. Gordon Brownell, head of physics research at the Massachusetts General Hospital, is explaining a point to two assistants, Charlie Porter and Les Parker. The anteroom is crowded, provoking frequent "excuse me" outbursts from the nurses. Everyone is clad in hospital suits, the men in wrinkled gray slacks and shirts, the women in gowns; everyone wears a hospital cap and mask; everyone wears boots; those without glasses wear goggles to protect their eyes from the ultraviolet radiation being used to aid in the sterilization of the area.

The patient is gently raised onto the operating table in the anteroom. Her arms are bared and various bits of equipment are immediately taped onto them. Meanwhile, six badges and six dosimeters are taped at various positions on her body to record radiation dosages for future study. Doctors Todd and Surtees continue to prepare to administer anesthesia, as Dr. Walzer gives the girl a hypodermic. The patient does not wince. At 8:57, the girl begins breathing the anesthesia through a tube and within the minute she is asleep.

At 9:00, Dr. Ojemann removes the cap from the girl's head, exposing a foot-long, half-circle scar. He shaves the critical area, which looks shaved clean already. Dr. William H. Sweet, neurosurgeon at the Massachusetts General Hospital, enters the anteroom and Professor Thompson greets him. There is no smiling or general talk, only a few discussions, many instructions, much activity. Judy Gates helps Dr. Sweet pull on rubber gloves, and he joins Dr. Ojemann beside the patient.

At 9:25, the girl is wheeled into the medical therapy room, which was designed and constructed as a surgical

operating room. Rocky Morris adjusts the three overhead operating lights to Dr. Sweet's satisfaction, brightly illuminating the operating area. The rest of the room is dimly, but adequately, lit by two ceiling lights. Doctors Todd and Walzer continue to control the anesthesia in the operating room; Mrs. Hambro is preparing to handle the surgical instruments for Doctors Sweet and Ojemann as they assume their positions.

The two doctors begin; the incision is made along the scar in the scalp; the flap is turned back, secured; four holes are drilled in the skull; a small, curved saw is passed under the skull, extending out through two of the holes; the skull is sawed, slowly, carefully. Many minutes pass. Dr. Sweet's hands labor incessantly, as Dr. Ojemann assists him. Mrs. Hambro hands instruments to the two doctors, arranges other instruments, removes used instruments. Dr. Todd listens to the patient's heartbeat with a stethoscope; a cardioscope in the anteroom displays the girl's pulse. Several viewers gaze from the anteroom through the small two-by-four foot viewing window.



At 9:57, Dr. Sweet removes the piece of skull and wraps it in tissue. Then the dura mater is opened and the brain tissue is exposed. The doctors use electrodes, which shut off small blood vessels, to control the bleeding. The minutes pass, Dr. Sweet consults with Dr. Ojemann, calls for instruments, gives instructions; his hands have not stopped since he began. The young nurse standing on a stool next to Dr. Sweet glances around the room, her eyes very intent, her cap pulled down tightly across her forehead, in nun-like fashion. Gordon Brownell moves into the operating room to tell Dr. Sweet that Al Soloway has arrived with the boron compound. At 10:12, the dura mater is flapped back and secured. The opening in the skull is as large as a man's fist.

"I would like to have the experts come over here to criticize," Dr. Sweet calls out. Gordon Brownell moves around the operating table to the area where Dr. Sweet is standing; Charlie Porter and Les Parker follow him. Dr. Sweet points out the cancerous brain tissue to Brownell, noting which area needs to be irradiated. Dr. Sweet and Brownell discuss the ensuing treatment. They are the two men most instrumental to the events taking place this day: Dr. Sweet is the neurosurgeon who conceived the idea of treating brain cancer in this manner. Surgery alone is ineffectual in malignant types of brain tumors such as this. Brownell has directed the radiation aspects of the treatment. Their progress has been aided by many others: Al Soloway's work on boron compounds, Charlie Porter's and Les Parker's work calibrating the radiation levels in the medical therapy room, and Robert Schermer's efforts in determining the neutron energies of the radiation. Dr. Sweet and Brownell continue their discussion while Dr. Sweet makes final preparations.

"I'd like a light over my right shoulder, looking down like this," Dr. Sweet calls out. Rocky Morris quickly adjusts one of the overhead lights. "This looks like normal brain tissue down here . . .," Dr. Sweet says to Dr. Ojemann, speaking in soft tones. His hands work less rapidly as he completes his task.

At 10:47, Dr. Sweet begins placing several tiny gold foils, six in number, and three short gold wires at various places in the open area, calling their number and medical position in a firm voice; Les Parker records their positions. Dr. Ojemann repeats the complex medical terms of positioning for Parker. These foils and wires will serve to measure the neutron intensity at the various positions for post-irradiation studies. Dr. Ojemann inflates a small white balloon at the instrument table and inserts it into the open area of the patient's skull; the balloon is intended to ensure that the area remains open. Drs. Sweet and Ojemann begin sewing the skull collimator in place. This is a lithium fluoride cylinder, one inch high, with a four-inch hole, and half-inch thick walls. Four flaps enable Drs. Sweet and Ojemann to sew the collimator to the drapes around the operative area, which are secured tightly. When joined to its counterpart in the ceiling, the collimator will provide a beam of neutrons for the cancerous area, and neutrons not in this beam will be absorbed by the lithium fluoride as protection to the rest of the head. Dr. Sweet also places small bags of lithium fluoride in putty-like form around the skull opening inside the collimator, and large bags around the outside of the collimator to protect the noncritical areas.

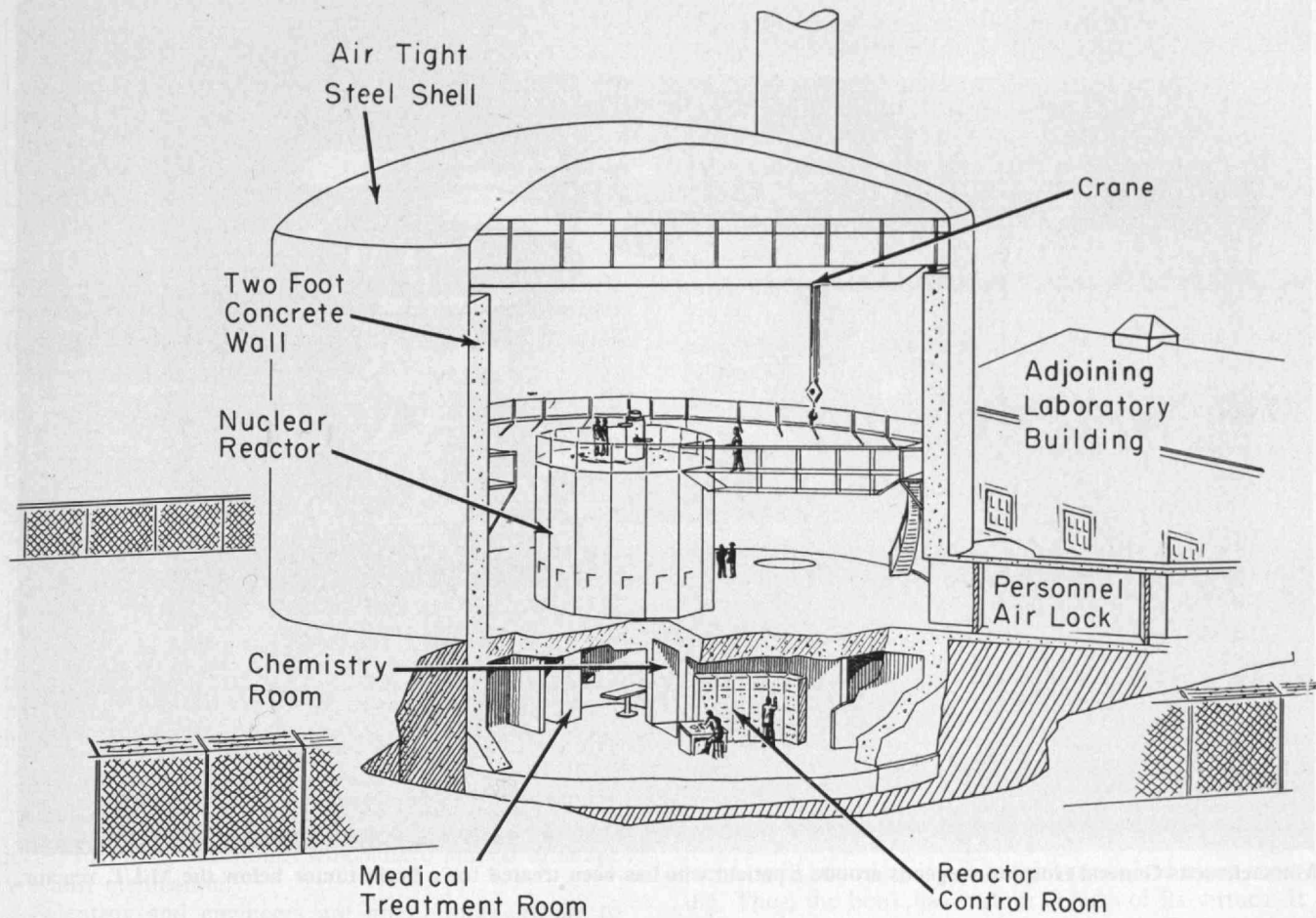
Al Soloway arrives with the boron compound, and Dr. Ojemann moves to take charge of the boron injection. Dr. Sweet smooths a plastic covering over the top of the collimator, stretches a rubber band around the collimator to hold it in place, begins positioning the patient's head. Mrs. Hambro steps down from her stool, getting her first chance to rest. Charlie Porter and Rocky Morris help Dr. Sweet, as he tilts the head so that the critical cancerous area will be perpendicular to the beam of neutrons, which will be streaming downward during the irradiation. A plumb bob, hanging from the ceiling, guides him as the patient is moved into proper position. Meanwhile, Dr. Ojemann is injecting the boron compound into the girl's bloodstream through the arm, assisted by Miss Gates. The boron compound will tend to concentrate selectively in the cancerous cells of the brain, the normal brain cells presenting a blood barrier to the boron compound; Drs. Sweet and Ojemann have been careful not to disturb the brain tissue itself.



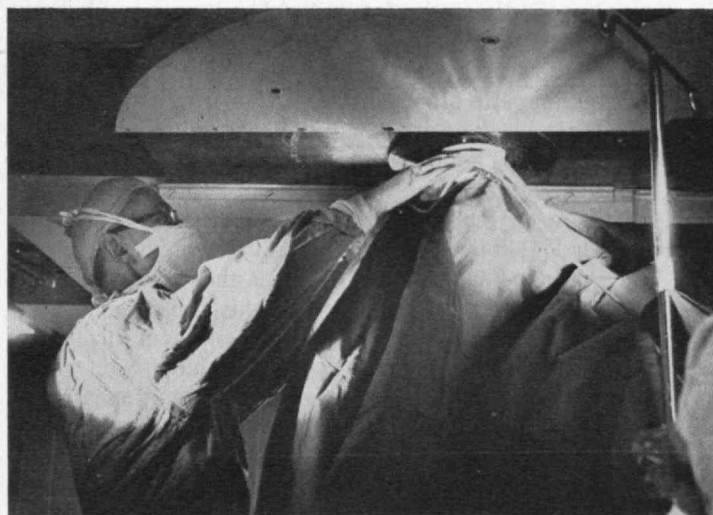
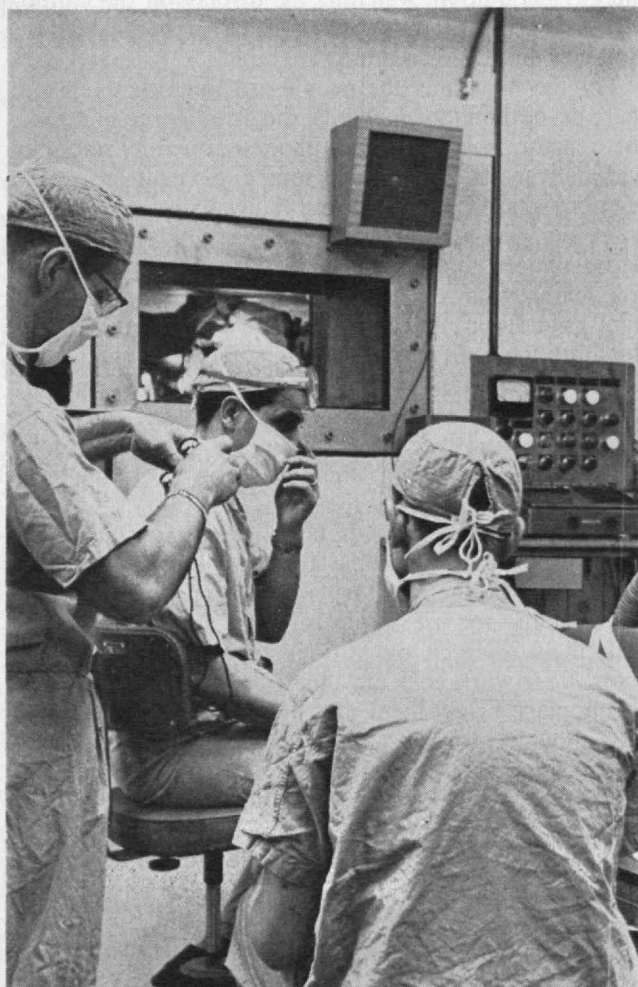
All equipment is rapidly removed from the operating room into the anteroom; the anesthesia is stabilized and control transferred to the anteroom, the anesthesia flowing through a tube penetrating the medical therapy room wall. By 11:33, the patient is ready. Les Parker begins raising the operating table, using the foot pump in one corner. Dr. Sweet stands on a stool to direct the raising of the patient. "One more pump should do it," he calls. Les pumps. "Okay that's it," announces Dr. Sweet, as the skull collimator fits against the ceiling.

Dr. Sweet steps down quickly, the lights are turned off, save for one; everyone leaves the operating room. Dr. Sweet is the last one to leave; the inner gate is closed; the heavy door is mechanically closed.

At the controls adjacent to the viewing windows, Charlie Porter announces, as he presses buttons, "Open-

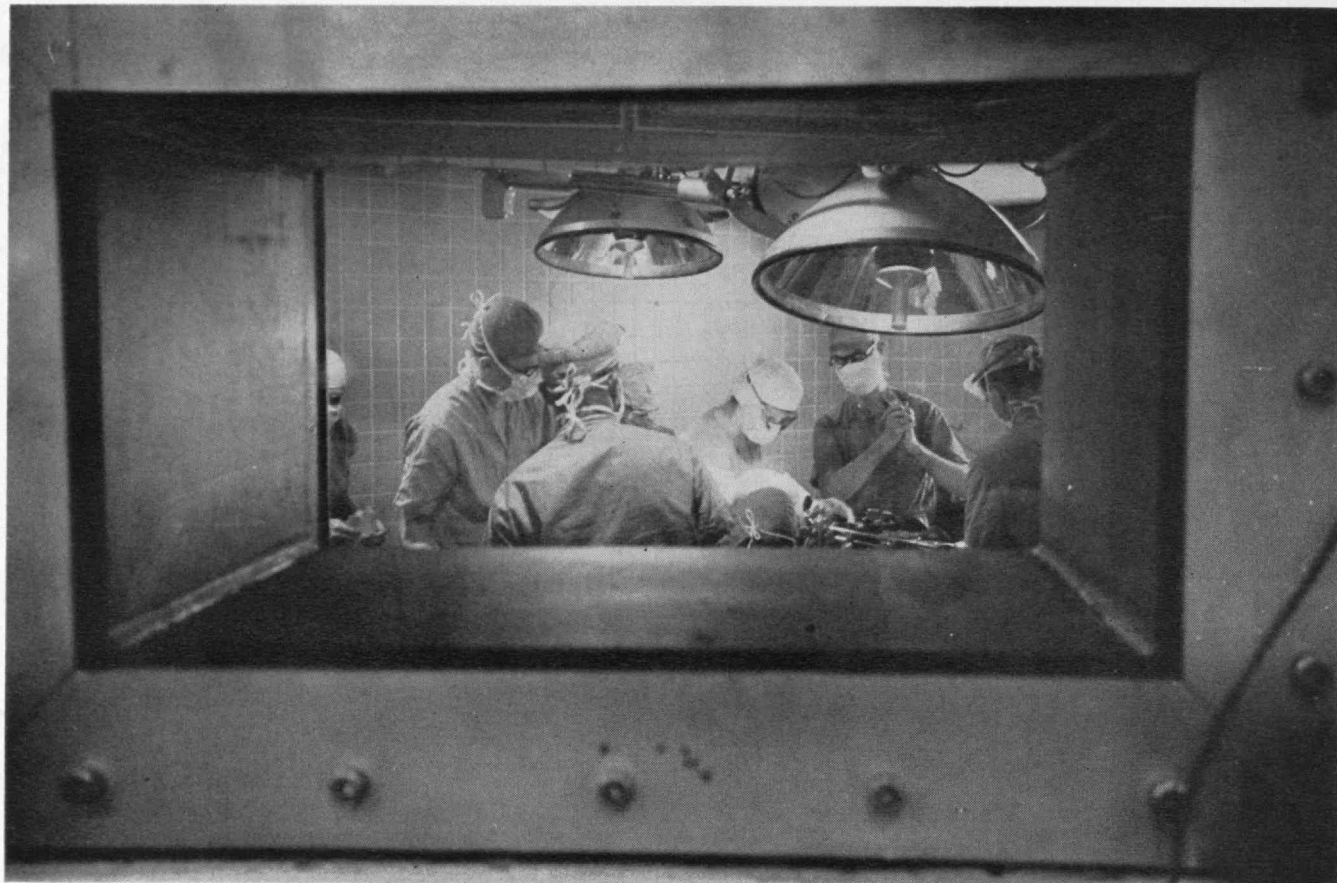


The medical treatment room is directly below the reactor. A Rockefeller grant made this medical room possible. Only one other reactor has a special facility for medical work.



The patient's head is precisely positioned near an aperture in the ceiling, through which the neutron beam is directed at cancerous tissue containing a boron compound.

The team of workers (at left) can watch the patient being treated through a window containing a glass tank. It is 4½ feet thick and contains mineral oil to absorb radiation.



Massachusetts General Hospital surgeons around a patient who has been treated for a brain tumor below the M.I.T. reactor.

ing lead shutter"; several seconds later, "Opening boral shutter," and at 11:49, "Opening water shutter." It takes 45 seconds for the water to drain and the shutter to open. At 11:50, the irradiation begins. Now, all anyone can do is wait, for 45 minutes.

No one can see the neutrons coming downward, but monitors indicate the intensity; they are streaming toward the cancerous tissue, reacting with the boron-10, the isotope used in the boron compound, producing highly energetic alpha particles, which destroy the cells immediately adjacent to their origins.

Professor Thompson stands near Dr. Sweet at the viewing window. "How does it look, Bill?" he asks.

"Okay, so far, Tommy," Dr. Sweet replies, nodding his head. Thompson gazes intently through the viewing window. The M.I.T. Reactor is the only one in existence capable of performing this treatment in a uniquely adapted manner, utilizing a downwardly directed beam of neutrons. Treatments have been given before elsewhere with a horizontal beam of neutrons, but such an arrangement prohibits the direct exposure of the brain tissue to the neutrons. Now, the vertical beam of neutrons available from the M.I.T. Reactor permits the cancerous brain tissue to be directly exposed to the neutron intensity, holding promise for the successful treatment of an otherwise fatal condition. Dave Lanning moves over by Professor Thompson. The girl looks helpless, lying motionless at the ceiling, a tube taped to her mouth feeding her anesthesia.

Dr. Harriet Hardy returns, anxious to learn of the progress, as she speaks with Dr. Lubin and Costa Malletskos. Ed Karaian and Pat Coggio measure the radiation level at the medical therapy room door and at the

viewing window. Drs. Todd, Surtees, and Walzer are grouped around the anesthetic apparatus, checking on the girl's condition, watching the display on the cardiograph, hearing the click, click, click of her heartbeat. Both her pulse and breathing are rapid.

For the first time, the people are somewhat relaxed; there is nothing to do while the irradiation proceeds; the reactor is being relied upon to operate smoothly and deliver its continuous source of neutrons. Mrs. Hambro sits on a stool in the hallway just outside the anteroom, just staring; Joan Koepcke, Judy Gates, and Sertia Walzer engage in general talk. Dr. Sweet checks frequently with the anesthetists concerning the patient's condition. The many people pass in and out of the anteroom, nervously waiting, standing around, resting on stools, walking back and forth, into the nearby reactor control room for a cup of coffee and some cookies. Greg Doyle, operator at the reactor console, checks the reactor log; the reactor is operating normally.

Upstairs, on the reactor floor itself, experiments go on as usual. Several people are readying apparatus for installation in the reactor; several are preparing another facility for use; professors and students are busy with their research on various topics around the reactor; their work goes on, unaffected by the irradiation taking place below them, but they inquire from time to time about its progress.

The minutes pass, 15 minutes, 30 minutes, before Dr. Sweet re-enters the anteroom, and says, "Eight minutes to go, so we better start getting our costumes on." Everyone is essentially ready anyway, but his

(Concluded on page 42)

Books

THE WESTERN INTELLECTUAL TRADITION, by J. Bronowski and Bruce Mazlish; Harper & Brothers (\$7.50). Reviewed by J. Samuel Jones, Assistant to the Director of Student Aid at M.I.T.

THIS has been a well-received book, generally favored by critics in the major reviews. It is further reviewed here to point up some aspects of perhaps special interest to Alumni and friends of the Institute.

Professor Bronowski, of Great Britain, was Carnegie Visiting Professor at M.I.T. Professor Mazlish is assistant professor of history in the M.I.T. Department of Humanities. Their writing here reflects M.I.T.'s traditional interest, going back to William Barton Rogers, in the interrelationship of science and philosophy, of technology and culture. Undergraduates and Alumni who have had no more than the required brush with the faculty of Courses XIV and XXI will find in this book familiar names and ideas, and recognize many of the arguments and judgments. For here are the key men, ideas, methods, and issues which have tended to shape Western civilization.

Scientists and engineers are not, I think, prone to concern themselves directly and professionally with the historical development of their subjects. Especially the human side of that development has, strictly speaking, been historically of no scientific interest. As ideas and tools acquire objective validity, any subjective context tends to become irrelevant.

The historians of ideas, especially those modern students who understand the impact of science, mathematics, and technology on the intellectual traditions of a society, nevertheless see important values to be served by examining through time the subjective context as well as the objective content of any culture. The present authors, for instance, say that "the creation of a contemporary culture . . . hinges on one central problem: to find a coherent relation between science and the humanities." Thus, the future scientist must sense the value of the humanities, and the humanist should get at least "a glimpse of the methods, the depth, and the inspiration of science."

Implicit here is a concern that today these two forces have drawn apart, leaving scientists with no past, and humanists with perhaps no future, tending to become antiquarians. We can shape our culture, and keep it integrated, Bronowski and Mazlish are saying, only by educating each other in the values and methods, together with an understanding of the common past, of the two intellectual forces.

A second purpose relates to the first. If the authors are correct in their implications—and Werner Heisenberg in his *Physics and Philosophy* supports them—the scientist will tend to view nature more or less according to the limitations of his culture. Moreover, he must formulate his hypotheses, at critical junctures, in

common language, itself a cultural phenomenon. The godlike "objectivity" of the Newtonians has given way to a more humble, human objectivity, in the face of relativity, quantum mechanics, and probability, where the old subjective dilemma of the social scientist as observer and observed is a limiting condition.

Bronowski and Mazlish take us back to the time of Leonardo. Here begins an expanding physical and intellectual world learning to look more directly at nature, more pragmatic, more and more secular, more human centered. Out of an almost morbidly insecure past, we see man turning from dogma to inquiry, struggling to turn from authoritarian institutions to institutions of consent and persuasion. Dissent, the authors argue, is the unifying theme of the age since the advent of Leonardo. Sensibility, rather than revelation, is the evolving ethos of this modern age.

But dissent begets dissent, as revolution and reformation beget counterrevolution and counterreformation, and rationalism begets romanticism. And dissent is not always "reasoned," as the authors here imply. At least the somewhat overly precise response of the Puritans to the theory of divine right of kings—the taking of Charles I's head—may have seemed a bit unreasonable to the Cavaliers.

It is fair to warn prospective readers that they won't get off lightly with this book. Though many chapters can stand free as essays, albeit well articulated with the whole, much of the material covered, and the arguments, will stimulate if not require more and more reading. Thus, the book has certain defects of its virtues. It is a superb basis for lectures, but it is not always at the level of "general reading."

Perhaps best illustrating the point here taken is the chapter on Kant. Kant doesn't come clear, in my judgment, until we are several paragraphs into Hegel. More significantly, Kant's philosophical influence on German scientists, especially Helmholtz, is only mentioned in a footnote. We are dropped pretty directly after Hegel and left hoping for more to come.

This illustrates a profound difficulty in historiography. To be relevant, history logically should begin *now*, and proceed backward. But the unhistorical present provides too few canons of relevancy—many roads lead backward. Hence, the paradox is that we need to know the beginning in order to understand the priorities of the present, but to know where and when to begin requires some ordering of the present. This predicament, however, is one that men such as Bronowski and Mazlish obviously tackle with exuberance and relish.

There are some minor flaws and major gaps in the book, as I judge it. There is an occasional lapse into journalese, but these are more than balanced by some extraordinarily pungent summary lines: "Having conquered the king, the Parlements lost the nation." That is the story of the French Revolution.

Francis Bacon rates no chapter to himself, and so remains a peripheral figure. As for gaps, they are mostly accounted for by the authors. However, I would have welcomed something on the theme of fear and insecurity, a topic not historically accounted for by having Hobbes and Locke vis-a-vis, and a chapter on Grotius and the development of the idea of International Law.

No matter, this is an exciting, readable book.

OUTWARD BOUND FOR SPACE, by David O. Woodbury, '21, with illustrations by Henry B. Kane, '24; *Atlantic Monthly Press* (\$4.50). Reviewed by Walter McKay, '34, Associate Professor of Aeronautics and Astronautics at M.I.T.

THIS inspiring, comprehensive, and tightly written book tells the story of space exploration and its future possibilities for peaceful purposes. The first chapters trace the history of rocketry, including an appreciation of Professor Goddard's pioneering work, give a brief account of the massive German development effort during World War II and the postwar pre-Sputnik work in this country at White Sands with Viking, which was followed by the too highly refined Vanguard, undertaken as part of this country's IGY participation. Mr. Woodbury may well have winced as he wrote this chapter and remembered how reception of his earlier book about Vanguard was clobbered by the bursting of Sputnik I upon a surprised world. The story from Vanguard on will still be green in readers' memories, but the author has brought good perspective to the impact of Sputnik I on our subsequent space programs.

The middle of the book spells out technical problems of space flight such as propulsion, guidance and re-entry into the earth's atmosphere. The space environment is described and the question of man's ability to survive and function in such alien surroundings is discussed, with our first steps being taken in Project Mercury. Throughout, Mr. Woodbury has shown his usual skill in reflecting the views of specialists, which he has diligently gathered, and his assessments of the capabilities of man and machine are technically correct and essentially conservative.

The remaining chapters block out our current research programs and include descriptions of the capabilities of rockets now under development. The environments of the moon and the near planets, Venus and Mars, are examined. Prospects for unmanned and manned flights to these and more distant bodies are discussed, here again with a realistic outlook on the motivation for such flights as well as their difficulties. The author does not see us about to depart for distant planets, let alone Alpha Centauri. Rather, an extended period of continued research over the nearer regions of space is indicated. Despite this restraint, the tremendous excitement and sense of adventure which space flight arouses in many, and which touched the whole world at the time of the first Sputnik, shines through.

Technical Works

NEW PUBLICATIONS especially likely to interest Alumni of M.I.T. include:

Adaptive Control Systems, by Eli Mishkin (formerly of the M.I.T. staff) and Ludwig Braun, Jr., of the Polytechnic Institute of Brooklyn (McGraw-Hill Book Company, \$16.50).

Plasma Physics, by James E. Drummond, with a chapter on "Plasma Physics Research at M.I.T." by Sanborn C. Brown, '44, Associate Professor of Physics at M.I.T. (McGraw-Hill Book Company, \$12.50).

Sequential Decoding, by John M. Wozencraft, '51, Associate Professor of Electrical Engineering, and Barney Reiffen, of Lincoln Laboratory (The Technology Press and John Wiley & Sons, Inc., \$3.75).

The Tragedy of the Chinese Revolution, by Harold R. Isaacs, Lecturer in Political Science at M.I.T. (2d Revised Edition, Stanford University Press, about \$7.50).

Class Reunions in 1961

- 1901 June 10-11. Endicott House, Dedham. Theodore H. Taft, Secretary, 34 Lawrence Street, Jaffrey, N.H.
- 1906 June. Plans in progress.
Edward B. Rowe, Secretary, 11 Cushing Road, Wellesley Hills 81.
- 1911 June 9-11. *50th reunion*: Snow Inn, Harwich Port, Mass. Oberlin S. Clark, Reunion Chairman, 50 Leonard Road, North Weymouth.
- 1913 June 9-11. Hotel-Motel 128, Dedham, Mass. G. Philip Capen, Secretary, 60 Everett Street, Canton.
- 1916 June 9-11. Oyster Harbors Club, Osterville, Mass. Thomas D'A. Brophy, Reunion Chairman, 470 Park Avenue, New York, N.Y.
- 1921 June 9-11. Mayflower Hotel, Manomet Point, Plymouth, Mass. Melvin R. Jenney, Reunion Chairman, Kenway, Jenney and Hildreth, 24 School Street, Boston 8.
- 1926 June 9-11. The Belmont, West Harwich, Mass. Robert T. Dawes, Reunion Chair-

- man, Thomas Taylor & Sons, Hudson, Mass.
- 1931 June 9-11. Wianno Club, Osterville, Mass. Harold D. Gurney, Reunion Chairman, 50 Victoria Road, Quincy 69.
- 1936 June 9-11. *25th reunion*: Baker House, M.I.T. Reunion Co-Chairmen: Vincent T. Estabrook, 25 Varick Road, Waban 68; Harold F. Miller, 50 Corell Road, Scarsdale, N.Y.
- 1941 June 9-11. Bald Peak Colony Club, Melvin Village, N.H. Reunion Co-Chairmen: Johan M. Andersen, Saddle Hill Road, Hopkinton; John F. Sexton, 14 Rangeley Road, Winchester.
- 1946 June 9-11. Snow Inn, Harwich Port, Mass. James S. Craig, Reunion Chairman, 4 The Valley Road, Concord.
- 1951 June 9-11. Chatham Bars Inn, Chatham, Mass. Charles H. Spaulding, Reunion Chairman, 9 Belfry Terrace, Lexington.
- 1956 June 9-11. Woodbound Inn, Jaffrey, N.H. Robert L. Malster, Reunion Chairman, 49 Elsinore Street, Concord.

Professors

Now

PROMOTION of 15 members of the Faculty of the Massachusetts Institute of Technology was announced this spring by President Julius A. Stratton, '23. Six of the men promoted are Alumni.



Roger W. Brown
Economics



Noam A. Chomsky
Modern Languages



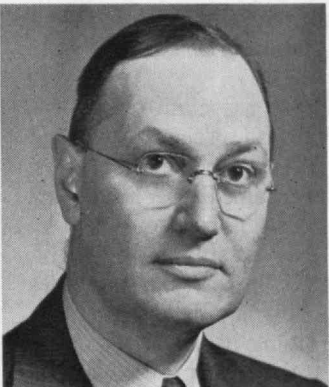
F. Albert Cotton
Chemistry



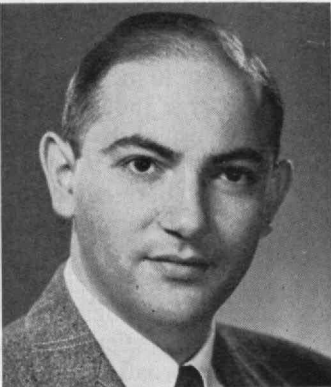
Peter T. Demos, '51
Physics



James A. Fay, '47
Mechanical Engineering



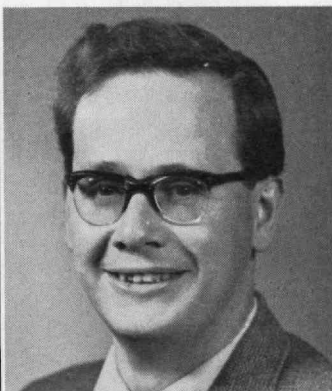
Richard H. Frazier, '23
Electrical Engineering



Morris Halle
Modern Languages



George G. Harvey
Physics



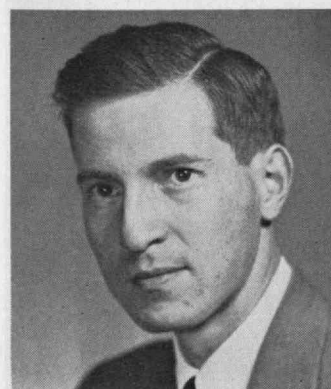
Vernon M. Ingram
Biology



Yao T. Li, '38
Aeronautics



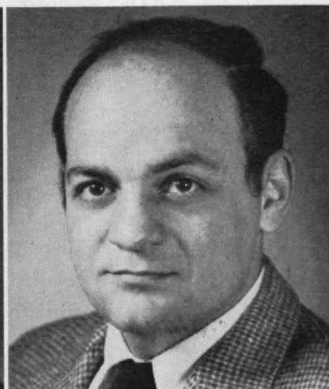
Thomas H. D. Mahoney
Humanities



Alan S. Michaels, '44
Chemical Engineering



J. Francis Reintjes
Electrical Engineering



Alexander Rich
Biology



Paul E. Sandorff, '39
Aeronautics

Institute Yesteryears

25 Years Ago . . .

ON THE OCCASION of the Institute's Diamond Jubilee, writing in *The Review* for April, 1936, under the title "Whither Bound?" President Karl T. Compton foresaw that, "The importance of technological education will continually increase . . . (2) There will be increasing differentiation between technological and technical training, *i.e.*, between the engineering school and the trade school. The field is rapidly becoming too complex to be included in one and the same curriculum, and the school which attempts to straddle both will succeed in neither.

"(3) Large industrial units or associations will increasingly establish their own trade schools to train expert technicians for their own special purposes. . . . (4) Undergraduate curriculums in technological schools will increasingly avoid specialization except in rather general fields, and will devote increasing attention to physics, chemistry, and the general principles and methods of engineering, with supplementary education in social science and training in the art of exposition. Such broad and basic training is needed to give the vision and adaptability required for positions of responsibility in a world of activities which are increasingly dependent on applications of science in new and varied ways.

"(5) As a corollary, the increasing need for many technological specialists will be met by the graduate curriculums, and we may expect a continuation of the recently growing emphasis on graduate study. (6) We will see increasing differentiation in scope and more logical adaptation to environment in our colleges and universities. . . . (7) Research will become a continually more important activity in the leading technological schools. . . .

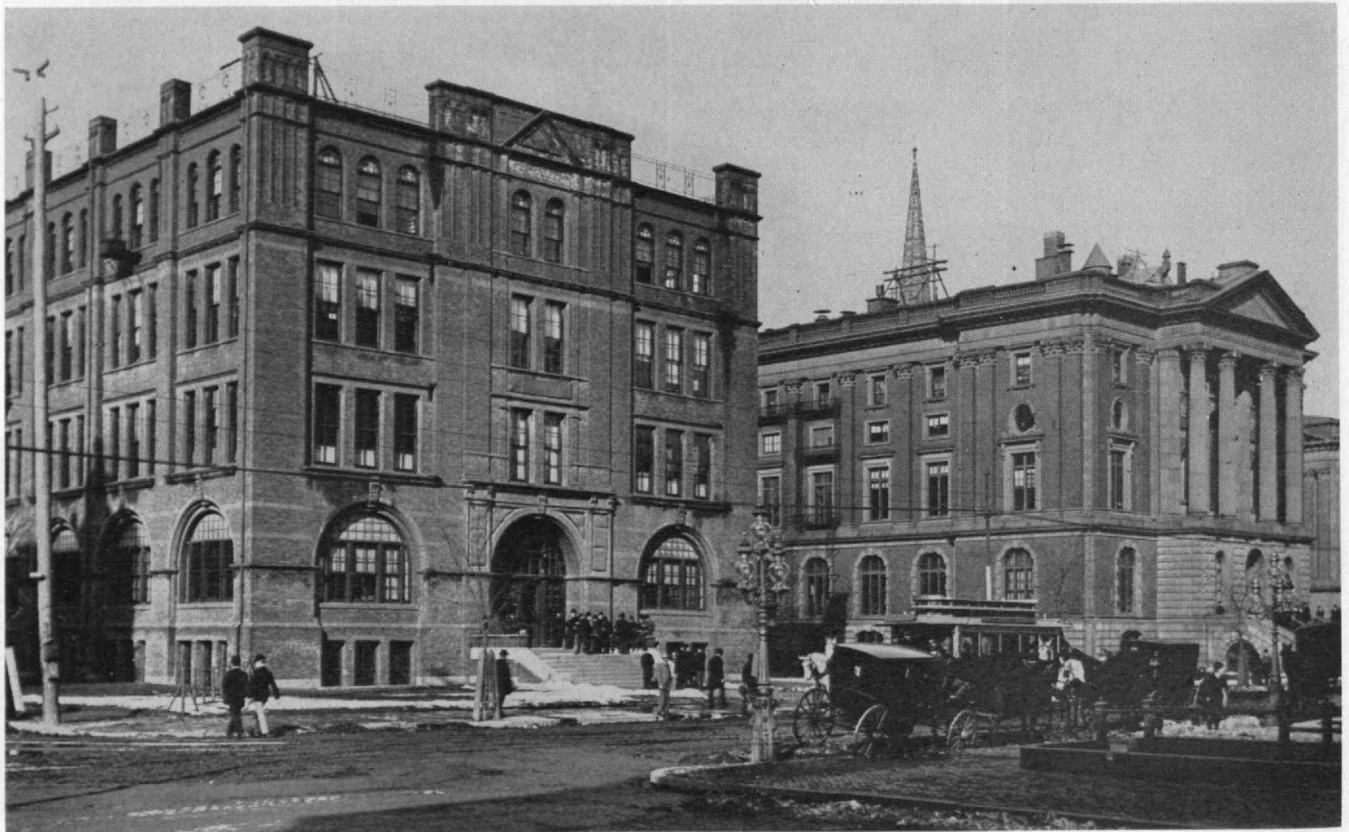
"(8) Finally comes the question: 'Will increasing taxation and other methods of forcibly distributing wealth so cripple private philanthropy in this country as to sound the death knell of the privately supported educational institutions, leaving all education in the hands of the State?' Inflation and taxation in an essentially socialistic state could accomplish this. If it should happen, education would be a major loser . . .

"In conclusion, if these forecasts do not entirely miss the mark, they offer both encouragement and guidance in our efforts to make the Massachusetts Institute of Technology of the future a preëminently strong and serviceable institution. Above all, they indicate that the *criterion for survival of a private institution will be that it offers a quality of education and public service, definitely superior to that obtainable in government-operated institutions.* This is the challenge of the future to those who administer the affairs of private institutions . . ."

50 Years Ago . . .

ON APRIL 10 AND 11, 1911, there took place a "Congress of Technology" to mark the 50th anniversary of the granting of the Institute's charter. Follow-

(Continued on page 44)



The Walker and Rogers Buildings as they appeared in the 1880's. Students won permission to play tennis between them.

BUSINESS IN MOTION

To our Colleagues in American Business . . .

The extruded copper section sketched below is used in a low-voltage circuit breaker made by one of the country's leading electrical equipment manufacturers.

Originally it was two extrusions brazed together as shown by dotted line. However, it was reasoned, if it could be made as a single extrusion a number of operations would be saved. At first that procedure appeared to be impractical in a copper extrusion as intricate and heavy as this (piece of it only $3\frac{7}{16}$ " long, measuring $4\frac{1}{4}$ " x $4\frac{7}{8}$ ", weighs eight pounds, seven ounces). But the possibility was believed to be worth investigating.

Through close collaboration between the manufacturer's engineering department and the Revere Methods and Production Departments, it was found possible to combine these two sections into a single extrusion. Work was started, dies were made and test runs conducted. The tooling (for hot extrusion was followed by cold drawing) also posed some special problems. It had to be both rugged and precise in order to produce this monster extrusion to the

manufacturer's exacting specification requirements.

Finally, a sample extrusion was delivered to the customer for testing and found to be right in every way.

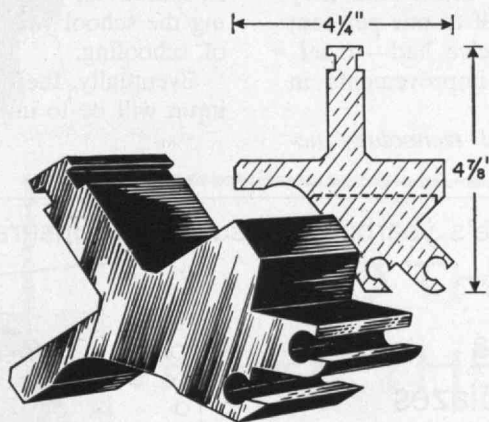
Not only does this Revere Copper Extrusion eliminate much costly machining in the customer's plant, but it obviates the need to purchase separate extrusions and braze them together. An extra benefit was

gained in the form of longer life for the new extrusion, because the heat required to join the two pieces used originally had tended to soften the built-up unit and thus shortened its useful life.

So, while some problems may seem virtually insoluble at first, why not explore the

possibilities by doing as this leading manufacturer did . . . call on the Revere Technical Advisory Service? In that way, by "fitting the metal to the job," Revere may be able to help you to cut costs, produce a superior product, or both.

In fact, it generally pays to adopt that principle with all suppliers—take them into your confidence; thus add their abilities and experience to your own.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N. Y.

Distributors Everywhere

Education, Technology & the GNP

(Continued from page 19)

for about 19 per cent of the recorded growth. Hence, about half of the growth rate of real GNP in the last 30 years can be ascribed to increased primary inputs of labor and capital.

Had this been all, our national output would have grown at a rate closer to one and a half per cent per year, and we would be much poorer than we are. The other half of the actual growth rate is a consequence of improved national productivity.

When we look at this remainder closely, we see that about half of it is attributed to the historical increase in the education of the labor force. Real GNP, in more explicit terms, has increased about seven-tenths of one per cent a year since 1929—which is about a quarter of the total rate of growth—in consequence of the prosaic fact that each year's labor force has been on the average better educated than the previous year's.

This leaves about 27 per cent of the full growth rate, about eight-tenths of one per cent a year, to be accounted for. Stein and Denison concluded that there was a slight loss of output because of greater restrictions against optimal use of resources, but this didn't amount to much. They attributed about one-third of one per cent a year to economies of scale. And they credited the rest, amounting to one-half of one per cent a year—a sixth of all the growth we've had—to advances in technical knowledge and improvements in actual production practices.

Together, education and improved technology ac-

counted for about 40 per cent of the recorded growth of the last 30 years. Of the 3 per cent per year increase in real GNP, about 1.2 per cent has come mainly from what goes on in people's heads. The national product per head has grown 1.7 per cent per year and it has grown 1.6 per cent per year per person employed. Of this latter rate of growth, no less than three-quarters is the result of increased education and increased knowledge. That's something to think about.

On the Other Hand . . .

Such figures tempt one to leap ahead with predictions and policy prescriptions. But no one can guarantee that the next 30 years will reproduce the pattern. Our real product may not continue to grow at 3 per cent per year, and it may well be that whatever growth we get in the next quarter of a century will come from different wellsprings. In some ways, in fact, this seems likely.

According to Stein and Denison, we have earned a high yield from improving the educational level of the labor force. This process, however, may be subject to diminishing returns; giving everyone a high school education may have added more to the nation's productivity than sending everybody to college would—hard as this may be for a college professor to swallow. There is, moreover, some limit to the possibility of lengthening the school year and adding to the number of years of schooling.

Eventually, the only way left to increase educational input will be to improve the *quality* of education. This

(Concluded on page 36)

From New York Life's yearbook of successful insurance career men!

JIM MADDUX—Once a Scout leader, now he blazes trails in insurance sales!

In becoming a New York Life Agent, Jim Maddux just shifted his natural talent for leadership from one field to another. As a senior patrol leader, he led a Scout group to a National Jamboree. After becoming an Eagle Scout, he represented his county at an International Jamboree in Austria.

Selling life insurance offers Jim the same challenge he found—and liked—in Scouting. After his first year, he was eligible for Nylic's "Star Club" of leading agents. As a further aid to his bright future, Jim now plans to study for his Chartered Life Underwriter degree.

Jim Maddux looks forward to a future whose rewards are limited only by his own efforts and ambition. If you believe this kind of career would interest you, or someone you know, write for information.



JAMES R. MADDUX
New York Life
Representative
at the
Ventura, Calif.,
General Office

Education: University of Southern California, B.S. '56

Employment Record: Joined New York Life '58. Member, Star Club '59, '60

New York Life
Insurance *Nylic* Company

College Relations, Dept. E-26
51 Madison Avenue, New York 10, N.Y.



TO THE PLACE WHERE THE FACTS GROW

New York is the focal point for facts about securities. It is the natural place for us to be, since we are responsible for investments that run into the billions.

But not all facts-in-the-making can be gleaned from investment manuals, corporate reports, the financial news or even from correspondence with management.

Someone has to catch a train or plane for the place where new facts are being born. He will talk with the chief executive officer and with other members of the official family who *know*. When new processes and products are due to have an impact on earnings, he will learn about them at first hand.

The officers of the Trust Company accept travel as a normal part of their business lives. Some facts will not come to us: we hunt them out and bring them back—alive.

UNITED STATES TRUST COMPANY

OF NEW YORK

45 Wall Street

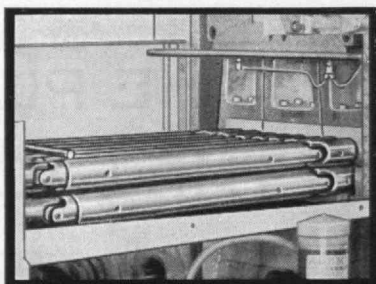
GEARS

Designed and Manufactured to meet YOUR Production Requirements

•
Custom Gears Exclusively
•

DIEFENDORF
GEAR CORPORATION
SYRACUSE 1, N. Y.

How Curtis solved a close center-to-center problem



The close center-to-center spacing of these drive spindles on a Sutton-Maust Precision Backed-up Roller Leveler created a tough problem for its manufacturer. He needed a universal joint strong enough to stand up under heavy rolling mill conditions, yet small enough to operate at such close quarters.

The answer was a Curtis universal joint! The maximum load carrying capacity and minimum torsional deflection of the Curtis joint was found to be completely satisfactory. And Curtis' famous Telltale Lock Ring construction permits quick disassembly for easier maintenance.

This is just one of the many power transmission problems solved by Curtis universal joints—size for size the *strongest* universal joints designed for industry. Selected materials, precision engineering, and 40 years' experience manufacturing universal joints exclusively make them that way.



14 sizes always in
stock 3/8" to 4" O.D.

Not sold through dis-
tributors. Write direct
for free engineering
data and price list.

WRITE FOR THE NEW CURTIS CATALOG, JUST PUBLISHED

TRADE
U CURTIS
MARK
UNIVERSAL JOINT CO., INC.
84 Birnie Ave., Springfield, Mass.
As near to you as your telephone

Education, Technology & the GNP

(Concluded from page 34)

is desirable in any case, but it will also be costly, and the net economic return to society may be less. If you believe, as I do, that more and better education would be a good thing even on wholly noneconomic grounds, and worth what it will cost in diversion of resources, then the economic benefits are just a bonus.

When we turn to policy-making, it is tempting to accentuate the positive and look only for places where conscious action promises a reward. But policy measures have costs. We must be sure we are prepared to pay the bill.

We do not in our society decide casually that people are spending too little on shoes or too much on hair tonic and commence legislation to set them right. Is there something special about education and research?

I think there is. Knowledge is one of the few things that tends to escape the market. Partly this is because knowledge is usually embedded in people and we do not permit property rights in people.

The public nature of knowledge is even clearer in the case of research. The more "basic" research is, the more the private yield is likely to fall short of the social yield. Under these conditions, even the most smoothly working market economy may tend to under-invest in education and research.

One hears often of technical progress being held up or dissipated now by featherbedding and other restrictive practices by labor organizations. There is little doubt that such practices impose a real burden on society by holding back potential output. But they stem largely from fear of technological unemployment, and this is a real thing, especially in the short run. A democratic society which wishes to eliminate featherbedding has, I think, the responsibility to do what is necessary to ease the transitional burden on displaced workers—by retraining programs, assistance in mobility, and (perhaps even more importantly) maintaining a high level of employment and a brisk labor market.

One of the side effects of the kind of emphasis we have been placing on the productivity side of the ledger is a tendency to underestimate the importance of capital formation in increasing output per head. Most methods for separating out the effects of technical progress and investment fail to allow for the strong interdependence between the two. Sheer replication of capital goods of the same type may indeed have only a weak effect on aggregate output, but increased knowledge in the absence of the capital formation necessary to convert blueprints into hardware may be equally unproductive. If this is so, then for any given rate of acquisition of knowledge, society can within limits speed up its rate of growth by stimulating investment, shifting the age distribution of its stock of capital goods toward the young side, and converting obsolete capacity into the latest models.

One source of extra output available to us right now is to get back to full employment. A high level of economic activity can have long-run effects on productivity—because pressure on capacity stimulates investment, and because lively markets for labor and goods help to break down restrictive practices and resistance to change. It could hardly hurt!



SUBJECT: FUTURES



RICHARD FROTHINGHAM AND JOSEPH WOLFE TALK ABOUT THE FUTURE OF TRUST SERVICES—AND PERSONAL SERVICE—AT THE NEW ENGLAND MERCHANTS NATIONAL BANK

Mr. Frothingham is a Senior Vice President and Mr. Wolfe a Vice President of the newly formed New England Merchants Bank.

FROTHINGHAM: The old street hasn't changed much, but if someone told me twenty years ago about all the changes there would be in banking trust service, I wouldn't have believed it.

WOLFE: Neither would I. But we've always said that a trust department should serve the public. And that's just what we're doing in our Bank by welcoming not only million-dollar accounts, but others as small as \$5,000.

FROTHINGHAM: I think it's fitting that the New England Merchants is one of the first with new trust-service ideas. After all, Boston's the cradle of trust business.

WOLFE: Even though we are the oldest trust department in town—we certainly have a new approach.

FROTHINGHAM: And a *sound* approach, because it's based on serving the entire investing public. A trust department today has to be in a position to assist everyone who needs personal trust service.

WOLFE: Speaking of that, I listed some of our new services this morning for an interested customer. Our Investment Plan—for people with good earnings and small savings. Our Investment Plan with Life Insurance—which creates an immediate estate overnight...

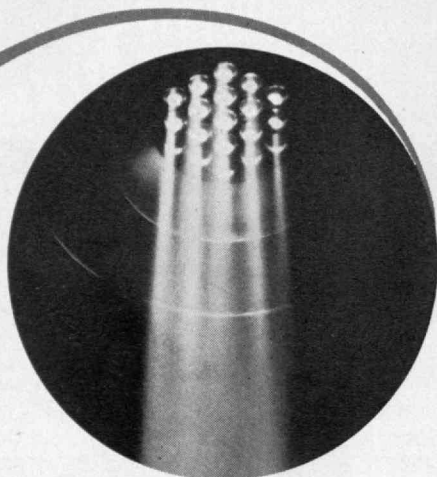
FROTHINGHAM: How about all of our new Common Trust Funds? And our Pension and Profit-Sharing Trusts have a new look, too.

WOLFE: And don't forget the service we aren't charging anything for—our *person-to-person* service.

FROTHINGHAM: And that's one thing we'll *never* change.

NEW ENGLAND MERCHANTS NATIONAL BANK
135 Devonshire St., Boston
MEMBER F. D. I. C.

Multi-aperture ion
engine operating
in hard vacuum.



ULTIMA THULE, ION PROPULSION AND BASIC RESEARCH AT EOS*

The ion engine is only one of the devices under development at EOS that is helping to push back frontiers, enabling us to delve deeper into physical phenomena. Being developed under contract, ion rockets will provide practical means of propulsion—helping achieve the ultimate goals of space travel.

A basic, inseparable portion of all division activities at EOS, research alone can supply the answers necessary to the completion of our advanced projects. State-of-the-art solutions to specific problems are relatively easy to provide—taking only time and manpower. We prefer to follow the more exacting path illuminated by combining basic and applied research in reaching our objectives—finding that the answers and information uncovered open broad new areas for investigation and opportunity.

*Electro-Optical Systems presently has positions on its Technical Staff for **PHYSICISTS, ELECTRICAL ENGINEERS, MECHANICAL ENGINEERS** who are interested in advanced research and development programs and are experienced in the areas of

- Solid State Physics
- Materials Research
- Fluid Physics
- Electronic Systems
- Energy Conversion
- Advanced Power Systems
- Electrochemistry
- Quantum Electronics
- Re-entry Physics

Scientists and Engineers are invited
to contact Mr. Don Smelser at

E ELECTRO-OPTICAL SYSTEMS, INC.
S 132 NORTH VINEDO AVENUE
S PASADENA, CALIFORNIA

Individuals Noteworthy

(Continued from page 4)

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments follow:

Walter M. Saunders, Jr., '22, as Metallurgical Director, Taft-Peirce Manufacturing Company, Woonsocket, R.I. . . . *Frank R. Shaw*, '24, as General Sales Manager, Rust Craft Publishers, Dedham, Mass. . . . *H. E. Weihmiller*, '25, as Vice-president of The American Astronautical Society . . . *Frank Marcucella*, '27, as President, John A. Volpe Construction Company and the Malden (Mass.) Evening News and Medford Daily Mercury;

Leslie J. Weed, '27, as Vice-presidential nominee, American Institute of Electrical Engineers . . . *Lenvik Ylvisaker*, '27, as Vice-president, Research and Engineering, Continental Can Company . . . *Howard L. Richardson*, '31, as a Trustee, the New Britain Trust Company, New Britain, Conn. . . . *Frank R. Cook*, '32, as head of a new Science Management Corporation, Denver, Colo.;

Ferdinand M. Johnson, '33, as Product Manager, Whitin Machine Works, Whitinsville, Mass. . . . *Richard S. Morse*, '33, as Assistant Secretary of the Army (Research and Development), Washington, D.C. . . . *David Ingalls*, '34, as a Director, Premier Microwave Corporation, Port Chester, N.Y. . . . *Eric J. Isbister*, '34, as Vice-president, Radiation Incorporated, Orlando, Fla.;

Arthur R. Anderson, '35, as a Director, American Concrete Institute . . . *William W. Smith*, '35, as Manager of Engineering and Development, The Electric Storage Battery Company's Nickel-Alkaline Battery Division . . . *Tzeng J. Suen*, '35, as Manager, Thermoplastics Project, American Cyanamid Company's Stamford Laboratories;

Sidney Cornell, '36, as President, Solatron Incorporated, Cambridge, Mass. . . . *W. Gardner Barker*, '37, as a Director and Chairman of the Finance Committee, Fifth International Food Congress, Inc. . . . *Rear Admiral Charles J. Palmer*, '37, as Commander, Portsmouth, N.H., Naval Shipyard;

Norman B. Robbins, '37, as Chief of Reconnaissance Projects, Con-

vair . . . *Colonel William F. Meany*, '40, as Commander, San Francisco Ordnance District . . . *H. Thomas Ware, Jr.*, '42, as Manager of Planning, IBM's Advanced Systems Development Division . . . *Joseph F. Alibrandi*, '52, as Manager, South Lowell Missile Plant, Raytheon Company;

Bernard F. Cassidy, '52, as Manager of destroyer nuclear plant testing, Knolls Atomic Power Laboratory . . . *Stephen A. Kliment*, '53, as Editor, "Architectural & Engineering News" . . . *Edwin P. Przybylowicz*, '56, as member of the Scientific Committee, Kodak Research Laboratories.

Student Planners

CHAIRMAN of the committee of students planning Centennial affairs at M.I.T. is *Jerome H. Grossman*, '61, and chairman of the Founder's Day Convocation committee is *Michael L. Jablow*, '62.

Peter R. Gray, '61, is maintaining liaison between Institute and student Centennial committees and *Robert G. Nagro*, '61, is secretary of the student group. Others active on it include *James A. Champy*, '63, *Thomas J. Lageman*, '62, *Steven D. Levy*, '62, *Edward M. Schneider*, '62, *Neil K. Weatherbie*, '62, *Warren M. Zapol*, '62.

Doolittle to Lecture

THIS YEAR'S *Lester D. Gardner* lecturer at M.I.T. will be *Lt. Gen. James H. Doolittle*, '24, USAF (Ret.), a Life Member of the M.I.T. Corporation and Chairman of the Board of Space Technology Laboratories. His topic will be "Early Blind Flying," and he will discuss some of the first experiments in instrument flying. The lecture will be given at 3:30 P.M., on April 28, in the Little Theater of the Kresge Auditorium, and will be open to the public.

The *Minta Martin* Lecture was given on March 2 this year by *W. P. Jones*, superintendent of the Aerodynamics Division of the National Physical Laboratory in England, and 1960-1961 *Jerome Clarke Hunsaker* Professor of Aeronautical Engineering at M.I.T. His topic was "Research on Unsteady Flow." This lecture will be repeated May 9 at the Institute of the Aeronautical Sciences Building in Los Angeles.

(Concluded on page 40)

ENGINEERS METALLURGISTS PHYSICISTS



Transitron's growth — Transitron's accomplishments in the electronic industry — are now known throughout the entire nation and Europe.

New plants have been needed to accommodate Transitron's rapid growth. New people — experienced engineers, metallurgists, physicists — are now needed by Transitron. And recent graduates who want a solid future in electronics within a strong, expanding firm, will find just that at Transitron.

Whatever your future plans are — whether you're experienced or inexperienced — Transitron invites you to contact the Director of Technical Placement for a confidential discussion about your future at Transitron.

Transitron

electronic corporation

Albion Street, Wakefield, Mass., 245-4500
Wakefield-Boston-Melrose, Massachusetts

SALES OFFICES IN PRINCIPAL CITIES THROUGHOUT THE U.S.A. AND EUROPE.



**Brooks Brothers present
A NEW LIGHTWEIGHT SUIT THAT
OFFERS MANY UNUSUAL ADVANTAGES**

As longtime leaders in lightweight Summer clothing for men, we are proud to introduce the latest development in this field...a remarkable blend of yarn-dyed Dacron* polyester and Orlon* acrylic—exclusive with Brooks Brothers—that permits finer tailoring, greater wrinkle-resistance and more interesting colorings than has been possible up to now in a washable suit. Included in the unusually attractive selection—all excellent for town wear—are solid shades of navy, black or oxford grey; fine hairlines in olive, medium grey or dark brown; and medium grey or olive Glenurquhart plaids with maroon overplaid, \$60

*DuPont's fibers

ESTABLISHED 1818

Brooks Brothers,
CLOTHING
Mens Furnishings. Hats & Shoes

346 MADISON AVE., COR. 44TH ST., NEW YORK 17, N. Y.

111 BROADWAY, NEW YORK 6, N. Y.

BOSTON • PITTSBURGH • CHICAGO • SAN FRANCISCO • LOS ANGELES

Individuals Noteworthy

(Concluded from page 39)

Speaking on Computers

THE FINAL LECTURES in a centennial series on "Management and the Computer of the Future," arranged by the School of Industrial Management at M.I.T., will be given at M.I.T. in May.

Sir Charles Percy Snow will discuss "Scientists and Decision Making" May 5. Dean Howard W. Johnson will preside and discussants will be Professors Elting E. Morison and Norbert Wiener.

Professor George W. Brown, Director of the Western Data Processing Center at the University of California, Los Angeles, will speak May 8 on "The Changing Structure of Computer Programs for Describing Complex Processes." Professor Philip M. Morse will preside and discussants will be Professor Michael P. Barnett and Dr. Grace M. Hopper.

Professor Nicholas C. Metropolis, Director of the Institute of Computer Research, University of Chicago, will speak May 16 on "Trends in Computer Design." Dr. Emanuel R. Piore will preside and discussants will be Dr. Gene M. Amdahl and Professor John McCarthy.

Dr. John R. Pierce, Director of Research—Communications Principles, Bell Telephone Laboratories, will speak May 22 on "What Computers Can Do Better." Dr. Vannevar Bush, '16, will preside and discussants will be Professors Walter A. Rosenblith and Claude E. Shannon, '40.

Staff Appointments

M.I.T.'s VICE-PRESIDENT and Treasurer Joseph J. Snyder, '44, has announced the appointments of John A. Little as Associate Comptroller and John P. Donahue as Assistant Comptroller of the Institute. Activities heretofore divided between the Research Fiscal Office and the Accounting Office are now being consolidated.

In Liaison Office

THOMAS YONKER, '56, has joined the M.I.T. Industrial Liaison Office's staff. After receiving his degree in Mechanical Engineering, Mr. Yonker was development engineer for the AiResearch Division of The Garrett Corporation.

Wear
It
In
Comfort
The
Next
Eight
Months



PLEASE NOTE . . .

Visit our shoe department . . . slip out of your winter-weights and into a pair of summer Bostonians . . . you'll enjoy their comfort and new styling.

Join — Buy — Save
8% or 10%

**THE
COOP**

this fine quality

Tropical Weight Suit 55% Dacron—45% Worsted

The fine blend of 55% Dacron Polyester fibre and 45% pure worsted makes this a suit for men of all ages . . . a suit that easily spans the seasons, offering warmth without weight and complete comfort when the mercury moves up. There's eight months of wearability in this Freedberg all-season suit . . . hand tailored in the New England tradition and crafted with impeccable skill.

69.50

**3 - MONTH
PAY-PLAN**



Since 1933, *The M.I.T. Press*
has published books by M.I.T. professors. Our
authors include:

Francis Bitter • John Burchard
Sanborn Brown • Stephen Crandall
Robert Fano • Truman Gray
Ernst Guillemin • George Harrison
Henry Houghton • John Hrones
W. D. Kingery • Kevin Lynch
Philip Morse • Samuel Prescott
J. F. Reintjes • Walter Rosenblith
W. W. Rostow • J. A. Stratton
C. Fayette Taylor • Arthur Von Hippel
Robert Woodbury • Norbert Wiener

and many others. Write Room 14N-325, M.I.T.
for a catalog.

The M.I.T. Press



NOW...

Even More
Heat-Exchange Capacity

Even Less **Air Friction**

with **AEROFIN**
Smooth-Fin
Heating and Cooling Coils

Write for Bulletin S-55

AEROFIN CORPORATION
SYRACUSE N. Y.

A Day Beneath the Reactor

(Concluded from page 28)

words transform the anteroom once more into a hive of activity. General talk stops; the nurses hurriedly prepare the equipment for re-entrance into the operating room. "Three minutes to go," Dr. Sweet calls, as he pulls off his gloves, washes his hands, and puts on another pair of rubber gloves.

At 12:35, Charlie Porter presses the controls to close the water, boral, and lead shutters. The medical therapy room door is opened. Ed Karaian and Pat Coggio enter first, monitors in hand, measuring the level of radiation at the patient's head. Charlie Porter lowers the operating table by rotating a valve. The table is swung back into operating position; Drs. Sweet and Ojemann move to their operating positions; Mrs. Hambro arranges the surgical instruments before her. The skull collimator and lithium fluoride bags are removed and the balloon is taken out; the brain is again open to view. The badges and monitors are taken off the patient's body. At 12:45, Dr. Sweet begins removing the gold foils and wires, dropping them into a can held by Les Parker.

"Any visible effects on the cancerous tissue?" a voice inquires.

"No," comments Dr. Sweet, as he prepares to close the critical area. The irradiation is complete, only the closure of the wound remains. After several minutes of cleaning the open area, the doctors begin suturing the dura mater, one stitch at a time, a new curved needle for each suture. Mrs. Hambro is kept busy threading the needles.

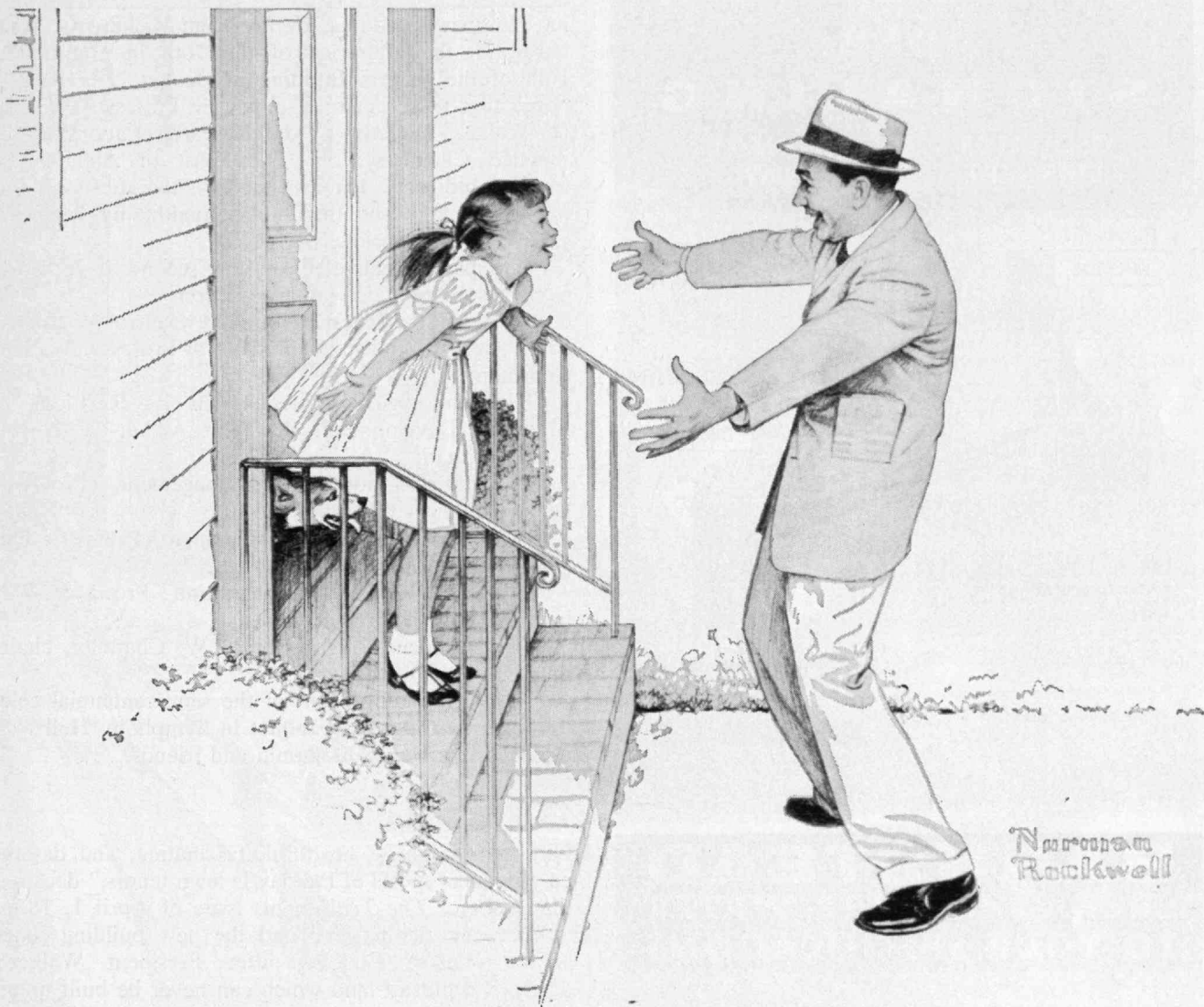
The girl's heartbeat is very fast; she is breathing with difficulty. Dr. Todd gives artificial respiration; the girl's temperature is taken. The dura mater is sutured, the skull piece is put back in place, the scalp is sutured with wire. The doctors do not look up for a second. By 2:00 P.M., the wound is closed; all appears satisfactory.

☆ ☆ ☆

The green drapes are removed from the patient as Dr. Sweet wraps the girl's head in bandages; anesthesia is discontinued. At 2:10, the girl is wheeled out of the operating room and into the anteroom. Within minutes, she moves one leg. Dr. Sweet leaves and returns to the anteroom, cap off, glasses off, mask off, already in his overcoat.

The patient is lifted onto the stretcher and once more is wheeled onto the elevator, on her way back to the Massachusetts General Hospital. Drs. Sweet, Ojemann, and Walzer accompany her in the ambulance.

This was one of the first treatments of a cancer patient at the M.I.T. Research Reactor, one of the first ever in this particular way. The operation went smoothly, the irradiation was according to plan. Will the irradiation treatment be a success? No one knows; everyone hopes it will. A brain tumor of the type that has been treated ordinarily would have taken its toll before very long. It will be many months, even a year or two, before a judgment can be made as to the success of the treatment. Has the cancerous tissue been destroyed? Will the tumor grow back again? Only time will tell.



Dad is home from a busy day . . . spent mostly in helping other Dads. Showed one father how to be certain there will be money for college when his kids need it. Helped another man make sure his wife will have an income as long as *she* lives. Guided another in planning a worry-free retirement. Worked with another father in making sure his son will inherit his business. Important, satisfying work.

He's a Massachusetts Mutual man. Like the doctor and lawyer, he fits his services to each

client's needs. And, like these professional men, he brings to his work thorough training, discretion, understanding — and a readiness to put in extra hours when it will help.

Somehow he finds time to be a good citizen, too. Glad to do his share of the community work that makes his town a fine place to raise a family.

He's got to be good — to be good enough for Massachusetts Mutual. And he's at *your* service.

MASSACHUSETTS MUTUAL *Life Insurance Company*

SPRINGFIELD, MASSACHUSETTS • ORGANIZED 1851

Some of the Eastern Group alumni in Massachusetts Mutual service:

LAFAYETTE

David B. Adler, C.L.U., '17, Orlando
Frederic F. Lawall, '22, New York
David K. Aldrich, C.L.U., '38,
Allentown
Frank W. Hiller, '43, Home Office
Benjamin C. Youngman, '44, Pittsburgh
Richard A. Faust, '56, Binghamton
Aman M. Barber, Jr., '59, Wilkes-Barre

LEHIGH

Russell E. Hoaster, C.L.U., '31,
San Antonio
Edward Billstein, Jr., '40, Atlanta
R. Lester Dodson, Jr., '44, East Orange

M. I. T.

Lyman L. Tremaine, C.L.U., '23,
New York
Harold Goodheim, '39, San Francisco
Harold G. Ingraham, Jr., '49,
Home Office
John L. Hegeman, Dayton

SELECTIVE TONE SIGNALING

OSCILLATOR
STABILIZER

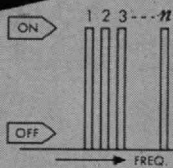
RESONANT
RELAY

TRANSMIT
ENCODE



THOUSANDS OF FUNCTIONS PER CHANNEL

FREQUENCIES
60-1000 CPS



RECEIVE
DECODE



FOR RELIABLE

- Selective Calling
- Remote Control
- Process Control
- Traffic Control
- Telemetering

by wire or radio.

Please write for
Catalog 563.

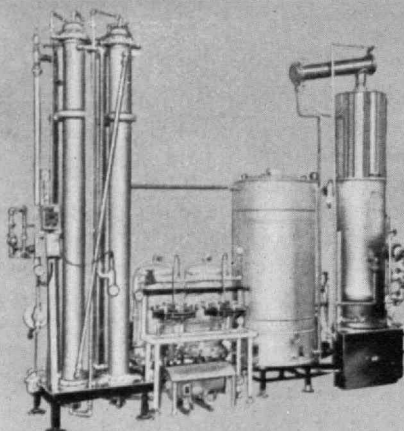
S/A - 261/4

**STEVENS
INCORPORATED
ARNOLD**

QUALITY SINCE 1943

7 ELKINS ST., SOUTH BOSTON 27, MASS.

BARNSTEAD ENGINEERS PURE WATER TO YOUR SPECIFICATIONS



PHILCO CORP'S Lansdale Tube Division uses this "Train" of Barnstead Pure Water equipment in various manufacturing cycles. Operating cost is low because the greater part of the process water is reupplied and fed back into the system for re-use. This "Train" includes a Barnstead 20 GPH High Purity Still, 150 gallon, heated, ultra-violet equipped tank to prevent growth of bacteria, two BD-10 Holders with special high purity Supercartidges®, an MF® 200 Submicron Filter, and Heat Exchanger. Another example of Barnstead's versatility in lowering manufacturing costs.

A. White, '26
T. Hartwell, '28
N. A. Everett, '48
V. C. Smith, '48
S. Beran, '58

Barnstead®
STILL AND STERILIZER CO.
2 Lanesville Terrace, Boston 31, Mass.

Institute Yesteryears (Continued from page 32)

ing the opening address by President Richard C. MacLaurin on the afternoon of the 10th in Huntington Hall of the Rogers Building in Boston. The Review noted that there "came a paper by Professor William H. Walker, Director of the Research Laboratory of Applied Chemistry, on 'The Spirit of Alchemy in Modern Industry.' The last paper of the afternoon was on 'Technology and the Public Health,' by Professor Charles-E. A. Winslow, '98. . . .

"The papers delivered on the second day of the Congress were divided into five sections:

"A. Scientific Investigation and Control of Industrial Processes, under the direction of Professor Walker, chairman;

"B. Technological Education in Its Relations to Industrial Development, Professor Arthur A. Noyes, '86, chairman;

"C. Administration and Management, Professor Davis R. Dewey, chairman;

"D. Recent Industrial Development, Professor Dugald C. Jackson, chairman;

"E. Public Health and Sanitation, Professor William T. Sedgwick, chairman; and

"F. Architecture, Professor F. W. Chandler, chairman. . . .

"The culminating event of the semi-centennial celebration was the great banquet in Symphony Hall . . . attended by about 800 alumni and friends. . . ."

75 Years Ago . . .

ONE OF "the most healthful, fascinating, and deservedly popular sports of the day is lawn tennis," declared the editor of *The Tech* in his issue of April 1, 1886.

"Between the Rogers' and the new building [later named Walker Building after President Walker's death] is a plot of land which can never be built upon, plenty large enough for four courts. We ask, 'Why cannot we have the use of it?' In reply, three reasons are given for not granting this:

"First. It would spoil the looks of the lawn. . . .

"Second. It is said that tennis between the two buildings would take the attention of the students from their work. . . .

"Third. It would tempt the fellows to cut recitations. So it would, and probably some would yield to the temptation, but the proportion of this class would be very small. There are many who have an hour between

(Concluded on page 46)

William H. Coburn & Co.

INVESTMENT COUNSEL

68 Devonshire Street

Boston 9, Mass.



What comes in a Catalina?

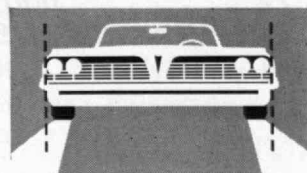
Wide-Track balance and roadability! Trophy V-8 performance!

Greatly improved gas mileage! Yours only in a Pontiac.

Yours easiest in a Pontiac Catalina. Yours is ready for you now at your fine Pontiac dealer's.

PONTIAC—THE ONLY WIDE-TRACK CAR

Pontiac has the widest track of any car. Body width trimmed to reduce side overhang. More weight balanced between the wheels for sure-footed driving stability.



PONTIAC MOTOR DIVISION • GENERAL MOTORS CORPORATION

SYSKA & HENNESSY, INC.

Engineers

John F. Hennessy '24

John F. Hennessy, Jr. '51



DESIGN • CONSULTATION • REPORTS
POWER PLANT • WASTE DISPOSAL • WATER SYSTEMS
New York City

STARTING A NEW BUSINESS?

Large or small—insure it with

BREWER & LORD

40 Broad Street

Boston, Massachusetts

NORMAN STOLZ XV '49

CHAUNCY HALL SCHOOL

Founded 1828. The School that specializes in the preparation of students for the Massachusetts Institute of Technology.

Ray D. Farnsworth, *Principal*, 533 Boylston Street, Boston, Mass.

ALEXANDER KUSKO, INC.

Consulting Engineers

141 Main Street Cambridge 42, Mass.

ELiot 4-4015

Research and Development in

Magnetics Transistor Circuits
Electric Machinery Control Systems
Instrumentation Power Supplies

A. KUSKO '44
J. A. GAUDET '56

J. P. BLAKE, '54
G. V. WOODLEY '55

K. BELLEHU '59

Institute Yesteryears

(Concluded from page 44)

recitations which could be much better used at lawn tennis than by playing pool in the 'chapel.'*

"By all means, let us have the ground between the two buildings for tennis!"

¶ The editor's moving plea was effective for in his following issue of April 15 he announced that the Faculty had "allowed the use of the ground [for tennis] for the present school year subject to provisions"—which were that the tennis players form an association with an "initiation fee of \$2"; that the association "employ an assistant to keep the grounds in order, including watering the lawn"; and, lastly, that the association "pay all damage to windows resulting from the games."

100 Years Ago . . .

ON APRIL 10, 1861, the legislative Act of Incorporation (Chap. 183; Acts and Resolves of 1861) was signed by Governor John A. Andrew, whereby William Barton Rogers, and other members of his Committee of Twenty, and ". . . their associates and successors, [were] hereby made a body corporate, by the name of the Massachusetts Institute of Technology, for the purpose of instituting and maintaining a society of arts, a museum of arts, and a school of industrial science, and aiding generally, by suitable means, the advancement, development, and practical application of science in connection with arts, agriculture, manufactures, and commerce; . . ."

* 'Chapel,' until the Institute removed to Cambridge in 1916, was the term commonly applied to the lounge bar of the Hotel Brunswick, on Boylston Street facing Rogers Building. Its entrance door was under a Gothic arch.

PHILIP H. RHODES & ASSOCIATES

Consulting Chemists

Specializing in

Resins and polymers. Raw materials,
process and product development,
Application and Marketing.

2861 SIDNEY AVENUE CINCINNATI, OHIO

PHILIP H. RHODES '35

The TREDENNICK-BILLINGS CO.

Construction Managers

Building Construction

K. W. RICHARDS '07

H. D. BILLINGS '10

C. C. JONES '12

F. J. CONTI '34

10 HIGH STREET

BOSTON, MASSACHUSETTS

PROFESSIONAL CARDS

JACKSON & MORELAND, INC.
JACKSON & MORELAND INTERNATIONAL, INC.
Engineers and Consultants

ELECTRICAL—MECHANICAL—STRUCTURAL
DESIGN AND SUPERVISION OF CONSTRUCTION
FOR
UTILITY, INDUSTRIAL AND ATOMIC PROJECTS
SURVEYS—APPRAISALS—REPORTS
TECHNICAL PUBLICATIONS

BOSTON WASHINGTON NEW YORK

EADIE, FREUND & CAMPBELL
Consulting Engineers

500 FIFTH AVENUE NEW YORK 36, N. Y.

Mechanical—Electrical—Sanitary
Air Conditioning—Power—Process Layouts
James K. Campbell '11

METCALF & EDDY
Engineers

Soils, Foundations, Waterworks, Sewage Works,
Drainage, Irrigation, Flood Control, Refuse,
Industrial Wastes, Airports, Highways, Military
Projects, Industrial and Commercial Facilities.
STATLER BUILDING, BOSTON 16, MASSACHUSETTS

THE KULJIAN CORPORATION
Engineers • Consultants • Constructors

UTILITY • INDUSTRIAL • CHEMICAL
Power Plants (Steam, Hydro, Nuclear), Public
Works, Processing Plants, Oil Refineries, Tex-
tile Plants, Institutions, Highways, Expressways,
Airports & Facilities, Military Installations.

H. A. KULJIAN '19 A. H. KULJIAN '48
1200 NO. BROAD ST., PHILADELPHIA 21, PA.

GILBERT ASSOCIATES, INC.
Engineers and Consultants

MALCOLM G. DAVIS '25, Vice President
ALLEN W. REID '12 E. C. EDGAR '35

Steam, Hydro, Diesel, Nuclear Power Plants; Industrial
Structures; Plant Safety, Utility Rates, Valuations, Reports;
Purchasing; Chemical Laboratory
New York • READING, PA. • Washington

FABRIC RESEARCH LABORATORIES, INC.

Research, Development, and Consultation
In the Fields of Fibrous, Organic, and Related Materials

1000 Providence Highway Dedham, Mass.
(At Route 128 and U.S. 1 Interchange)

W. J. HAMBURGER, '21 K. R. FOX, '46 E. R. KASWELL, '39

LAUREN B. HITCHCOCK ASSOCIATES
Chemical Engineers

Industrial Research & Development
Technical & Economic Evaluations
Acquisitions of Processes and Plants

Commercial Chemical Development—Air Pollution Control

LAUREN B. HITCHCOCK '20 Technical Advisor, JOHN H. SCHAEFER '26
60 East 42nd Street New York 17, N. Y.

FAY, SPOFFORD & THORNDIKE, INC.
Engineers

Airports, Bridges, Express Highways
Water Supply, Sewerage and Drainage Systems
Port and Terminal Works
Industrial Plants Incinerators
Designs Investigations
Supervision of Construction

11 Beacon Street Boston, Massachusetts

CAPITOL ENGINEERING CORPORATION

Consulting Civil Engineers

DILLSBURG, PENNSYLVANIA, U.S.A.

ROBERT E. SMITH '41, President

MAURICE A. REIDY
Consulting Engineers

BRIDGES BUILDINGS
STRUCTURAL DESIGNS FOUNDATIONS
CONSTRUCTION CONSULTANT AND ARCHITECTURAL ENGINEER

Estimates and Appraisals

101 TREMONT STREET BOSTON, MASS.

CHARLES NELSON DEBES ASSOCIATES, INC.
Engineers and Architects

Structural, Electrical, Mechanical, Acoustical
Industrial, Commercial and Municipal Projects

915 EAST STATE ST. ROCKFORD, ILL.
C. N. DEBES '35

MORAN, PROCTOR, MUESER & RUTLEDGE
Consulting Engineers

Foundations for Buildings, Bridges and Dams;
Tunnels, Bulkheads, Marine Structures, Soil Studies and
Tests; Reports, Design and Supervision

WILLIAM H. MUESER '22 PHILIP C. RUTLEDGE '33
415 Madison Ave., New York 17, N. Y.

BREWER ENGINEERING LABORATORIES
Consulting Engineers

Electric Strain Gage Testing • Stress Analysis
Strain Gage Amplifiers • Strain Gage Switches
High Temperature Strain Gages

MARION, MASS. TEL. 103
G. A. BREWER '38 J. D. INGHAM '43

CLEVERDON, VARNEY & PIKE
Consulting Engineers

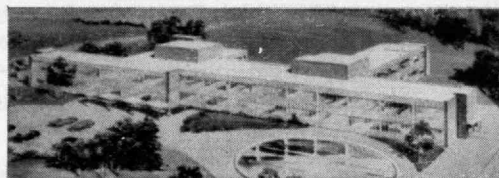
HERBERT S. CLEVERDON '10 WALDO F. PIKE '15
JOHN A. DOW '23 HAROLD E. PROCTOR '17

Structural Designs Foundations
Heating, Ventilating, Electric and Plumbing De-
signs, Industrial Buildings, Reports, Investigations

120 TREMONT STREET BOSTON 8, MASS.

BASIC STUDIES IN

COMMUNICATIONS TECHNIQUES...another accelerating area of research at Sylvania's APPLIED RESEARCH LABORATORY



At ARL, basic research in applications in statistical communication theory offers liberal opportunities for original work.

As the central research facility for Sylvania Electronic Systems, ARL's multi-disciplined staff covers an unusual range of short and long range studies in commercial and military areas.

A new laboratory now being constructed at Waltham, Massachusetts will substantially increase the research activities of this highly individual staff.

ARL

Applied Research Laboratory

Present research activities in Communications Techniques include:

OPTIMUM ANTENNA SYSTEMS FOR TROPOSPHERIC SCATTER

Theory involves a wide class of fading signals. Optimum systems, shown to exist in principle, surpass present diversity systems by perhaps 5-15 db. Major efforts involve analyzing fade-induced signal fluctuations for various receiving configurations, including both various diversity systems and more novel techniques thought to be closer to the optimum.

COMMUNICATION FEEDBACK TECHNIQUES

Various system concepts being examined as promising alternatives to redundant coding for error correction in digital communications links. Both repeat request and average improvement types of systems are being studied, including unsolved problems associated with fading and noise on the feedback channel.

MODULATION SYSTEMS FOR SATELLITE RELAY COMMUNICATIONS

Study of advanced signal modulation techniques for use in satellite relay communication systems. A special emphasis is being placed on techniques with reduced vulnerability to interference, and relation to various problems of synchronization and possible application for adaptive (communication feedback) techniques.

Indicative of the calibre of the laboratory studies in communication techniques and the opportunities for individual scientific research, the following is a list of some papers recently accepted for publication in the literature:

- *Distortions of Angle Modulated Signals in Misaligned Linear Filters*, accepted for publication in Transactions IRE, PGCS.
- *Frequency Differences Between Two Partially Correlated Noise Channels*, accepted for publication in Transactions IRE, PGIT.
- *Binary Error Rates in Fading FDM-FM Communications*, accepted for publication in Transactions IRE, PGCS.
- *Binary Error Rates in Fast Fading FDM-FM*, accepted for publication in Proceedings IRE (correspondence).
- *On the Approach of a Filtered Pulse Train to a Stationary Gaussian process*, accepted for publication in Transactions IRE, PGIT.
- *A Theory of Antenna performance in Scatter Type Reception*, accepted for publication in Transactions IRE, PGAP.
- *Some Results in the Problem of Discriminating between Two Gaussian Processes*, accepted for publication in Transactions IRE, PGIT.

Communications scientists and engineers at ARL enjoy helpful inter-disciplinary relationships with other research groups:

**MATHEMATICS • SYSTEMS RESEARCH • DATA PROCESSING •
ENGINEERING RESEARCH • RADIO PHYSICS**

APPLIED RESEARCH LABORATORY

SYLVANIA ELECTRONIC SYSTEMS
Government Systems Management
for **GENERAL TELEPHONE & ELECTRONICS**



Staff appointments at the advanced degree level are open in all engineering and scientific groups at the Laboratory. For complete information, please write to:
DR. L. S. SHEINGOLD, DIRECTOR

100 First Avenue, Room 4-C - Waltham 54, Massachusetts

Club Notes

New Club Launched for Greater Boston Area

A new club has been organized to bring together some of the more than 6,000 M.I.T. Alumni who make their homes and earn their living in the communities surrounding Boston. At the first regular luncheon meeting, held January 23 at Robin Hood's Ten Acres in Wayland, 36 Alumni heard Assistant Professor of Transportation Engineering, Martin Wohl '53, describe Route 128 and its relationship with the city of Boston past, present and future.

Louis Rosenblum '42 has been temporary chairman of the organizing group, which includes Robert Alfred '41, Robert Anslow '54, Emerson Callahan '48, Michael J. DiBartolomeis, Rod Flinchbaugh '42, Robert Malster '56, Robert McMath '55, William Pease '42, Ted Schwenke '60, Joe Vitka '49, John Vozella '45, and Jay Zeamer, Jr. '40.

Jay Zeamer, Jr. has been appointed chairman of the Nominating Committee. Nominations and election of Club officers will take place at the next luncheon meeting, March 20. Joe Vitka is acting chairman of the Membership Committee. Interested Alumni are urged to contact him or Louis Rosenblum. Fred Lehmann '51, of the Alumni Office, is coordinating the Club's activities with the Alumni Association.—Prepared by William M. Pease '42 and Michael J. DiBartolomeis, Radio Corporation of America, Burlington, Mass.

Philadelphia Club Hears Firsthand Report from Alaska

Bill Pleasants '33, RCA Manager of the BMEWS project at Clear, Alaska, drew an excellent turnout of 104 for our January 23 dinner meeting at the Barclay Hotel. Many of our elder statesmen were present, including Francis J. Chesterman '05, Arthur M. Cheney '06, Philip H. Chase '09, Franklin Osborn, 2d '11, Robert W. Weeks '13, Emerson L. Bray '13, and Rene A. Pouchain '17. Bill's talk was illustrated with slides and movies.

We held elections that night, too. C. Willis Stose '22 provided a slate selected by the Nominating Committee, and it was voted into office unanimously. The new officers for the Club are: President, Wiley F. Corl, Jr. '39; 1st Vice-president, Charles W. Hargens, 3rd '41; 2nd Vice-president, Herbert R. Moody '41; 3rd Vice-president, Robert G. Fisher '44; Secretary, Thomas V. Griffiths '57; Treasurer, Lee C. Eagleton '44; Executive Committee, Robert W. Richardson '26, Addison S. Ellis '32, James W. Libby, Jr. '35, Stephen B. Hazzard '43, William H. Bertolet, 3rd '48, Russell F. Hodges '49, Thomas P. Melone '55.—Herbert R. Moody '41, Secretary, 3010 Tower Road, Huntingdon Valley, Pa.

Northern California Club Visits United Air Lines

A record number of 186 Alumni and guests attended the Winter dinner meeting of the M.I.T. Club of Northern California last January 27, held at United Air Lines' central maintenance base at San Francisco's International Airport. William C. Mentzer '31, United's Vice-president in charge of engineering, was the sponsor and speaker at the meeting. Bill's talk outlined the many procedures and operations that are carried out to maintain United's fleet of jet and piston aircraft. Both his talk and the tour of the maintenance base that followed impressed all of us with the magnitude and complexity of these operations. A highlight of the tour was going through one of United's newest jet planes.

The officers of the club wish to express their thanks to Neil Hanson and Bill Hecht of United Air Lines who planned the tour. The club is also grateful for the help received from its committee members, Howard Arnold '31, Roger Borovoy '56, Ralph Bunch '60, George Keller '48, Roger Morse '42, Richard Perry '25, and Bill Spaulding '38, who aided in planning this meeting.—Roger Borovoy '56; Keatinge Keays '55, Secretary-Treasurer, 2239 40th Avenue, San Francisco, Calif.

X-15 Pilot Speaks to Southern California Group

A total of 135 members of the M.I.T. Club of Southern California and guests attended the 35th annual Officer Election Dinner meeting at the University Club in Los Angeles on Thursday evening, January 19, 1961. The speaker of the evening was Mr. A. Scott Crossfield, Chief Test Pilot of North American Aviation, whose subject was "The X-15 Rocket Powered Aircraft in Perspective."

The following slate of officers for 1961, presented by Nominating Chairman Robert Welles '15, was unanimously elected: President, Raymond B. Stringfield '15; 1st Vice-president, George M. Cunningham '27; 2nd Vice-president, T. Gary Loomis '44; Treasurer, Robert M. Copsey '44; Secretary, Albert A. Livingston '49; Past President, Richard S. DeWolfe '36; Assistant Secretary, Richard J. Steele '46; and Assistant Treasurer, Ben King Duffy '41. Also elected to the board were James S. Cullison '41; Samuel E. Lunden '21; Joseph W. Marshall '53; Charles H. Toll, Jr. '23; Robert Welles '15; Hiram E. Beebe '10; Dean E. Batchelder '28; Page Golsan, Jr. '34; Robbins H. Ritter '37; Ray O. Wyland, Jr. '42; Charles M. Walker '49; Donald G. Gilbertson '53; Howard D. Phillips '57.

Chauncey J. Hamlin '31, member of the Corporate Development Planning Staff of North American Aviation, Inc., introduced the speaker. Mr. Crossfield was the pilot for all first flights of the U. S. Air Force's X-15, which will eventually carry man to the fringes of space. Besides his thrilling story, colored motion pictures were shown of historic launchings and flights of the X-15.—Albert A. Livingston '49, Secretary, 3850 Wilshire Boulevard, Los Angeles 5, Calif.

Centennial Year Theme Of Dayton Club Meeting

The M.I.T. Club of the Miami Valley held its Centennial Year dinner meeting at the Van Cleve Hotel in Dayton, Ohio, on February 6. The theme of the meeting was "100 Years of Excellence in Education," and Dr. John B. Wilbur '26, former Head of the Civil and Sanitary Engineering Department at the Institute, was the speaker. Present at the meeting were: W. T. Adams '21, Zach Abusa '41, W. T. Butt '41, J. W. Caulder '31, R. M. Courtney '52, L. L. Custer '13, G. D. Gardner '53, M. J. Gibbons '06, J. C. Gilfillan '53, W. H. Hagenbuch '40, W. J. Moore '58, J. B. McNeely '57, R. A. Poirier '50, and W. T. Walther '50.

Following the excellent meal, Dr. Wilbur discussed the effect of the present scientific revolution on engineering education. Mike Gibbons, Class of 1906, was awarded an M.I.T. tie clasp with matching cuff links for being the oldest Dayton area Alumnus present. However, L. L. Custer '13 ran a close second. Both had a considerable bit of wisdom to add to Dr. Wilbur's talk on engineering education, which made for a lively evening for all who attended.—James B. McNeely '57, Secretary, Post Office Box 402, Bellbrook, Ohio.

Deceased

DORVILLE LIBBY, JR. '95, Dec. 14
WINTHROP COOLIDGE '96, Nov. 9*
FREDERICK T. RUNDLET '96, Oct. 28*
AUGUSTUS C. LAMB '97, Jan. 2*
MAURICE F. DELANO '98, Nov. 6*
EDWARD N. MILLIKEN '98, no date given*
KARL W. WATERSON '98, Jan. 24*
GEORGE E. LYNCH '99, Nov. 30*
WARREN W. SANDERS '00, Jan. 6
HARRY M. THAYER '00, Jan. 12*
GRETA GRAY '01, Jan. 19*
EVERETT O. EASTWOOD '02, Dec. 15*
L. MARTIN HARWOOD '03, Jan. 5*
SIMON J. MARTENET '04, Dec. 11*
LOVELL H. PARKER '05, Jan. 17*
ALBERT G. PRESCOTT '05, Feb. 12*
JESSE R. CLARK '07, Nov. 19
EUGENE V. POTTER '07, Feb. 12*
THOMAS W. ORR '08, Oct. 28*
GEOFFREY W. WELCH '08, Oct. 1*
DANIEL BELCHER '09, Jan. 9*
BERNARD R. FULLER '09, Feb. 6*
PHILIP W. BURNHAM '10, Dec. 27*
GRANT W. ARNOLD '11, Nov. 2*
GEROULD T. LANE '13, Jan. 12*
WARREN C. NEWBURY '14, Sept. 1960
FRED L. COOK '15, Aug. 6
CARL E. CARSTENS '16, Jan. 17*
CHARLES W. FRY '16, Nov. 23*
JOHN M. HOOD '16, Dec. 23*
RALPH J. BUSHEE '18, Dec. 8*
HOWELL N. TYSON '20, Dec. 17*
PAUL T. VALOV '20, Feb. 7, 1960*
ROBERT W. SCOTT '23, Dec. 27
ARTHUR J. WESTCOTT '23, July 8*
LEON T. COLMAN '24, Jan. 25
HARRY L. STILES '25, Dec. 30
OTTO HARDACRE '36, Oct. 24, 1959*
CHARLES M. CLOTHIER '51, Dec. 16
WILLIAM W. HEILMAN '51, Feb. 14
WILLIAM C. McLAUGHLIN '51, Dec. 15

*Further information in Class Notes

Class Notes

'94

The few surviving members of the class will surely note with pleasure that **Charles Abbot** has recognition in the folder "M.I.T. Alumni Make News" sent out by Chairman Ryer of the Alumni Fund Board as a part of his annual letter in seeking support for the Fund. It will be noted that Abbot was the grand old man on this notable list, in fact the only one whose graduation dated back to the last century. His case is an unusual one. Having long ago retired as the director and secretary of the Smithsonian, Abbot has continued, through pure devotion to his researches on rainfall cycles, to maintain the studies begun years ago. It is not surprising that there is now a constant and increasing demand for the unique publication showing his forecasts for the years 1959 to 1967. Whether or not he attains "a .600 batting average" as he expects, it cannot be gainsaid that he is himself a phenomenon, as, at the age of nearly 89, he devotes his days to research for the good of mankind. Incidentally, he continues to play golf on Saturdays when possible and with skill and accuracy so that his scores might be the envy of many a man 20 years his junior.

Another classmate who also continues to keep up his weekly golf with similar results is our President **Horace Crary**. In this he is joined by his charming and capable wife. If in 1964 we should have a 70th reunion, a match between these daughty competitors should be a feature indeed, as it has been in the reunions of 20 or more years ago.

The secretary is cheered from time to time by a telephone call from **Jack Nowell** from his lovely home in Hillsborough, Calif. The most recent one in-

Birthdays

Birthday greetings are in order during April for two Alumni who will become 85 and 13 who will celebrate 80th birthdays, as listed below with dates of birth.

April, 1876—**ABRAM FRENCH** '98, on the 10th, and **JAMES A. PATCH** '00, on the 20th.

April, 1881—**CLARENCE M. JOYCE** '03, on the 1st; **WILLIAM L. DOTEN** '04, on the 2nd; **JOHN J. A. NOLAN** '03, on the 3rd; **GEORGE E. KERSHAW** '03, on the 4th; **HOWARD T. CHANDLER** '01, on the 6th; **LAHVESIA PACKWOOD UDALE** '09, on the 7th; **HENRY L. LYMN** '04, and **BURTON G. PHILBRICK** '02, on the 14th; **BURTON E. GECKLER** '05, on the 15th; **LESLIE CLOUGH** '05, on the 17th; **ELIZABETH STONE MACDONALD** '08 on the 20th; **ISAAC I. YATES** '06, on the 22nd; and **JOHN W. AGER** '04, on the 26th.

dedicated reasonably good health and activity, and the news that successful operations for cataracts had brought much comfort to Sybil and thus to himself. Health permitting, the secretary may venture one more flight to the Pacific coast shortly, and if so, he counts on seeing these wonderful friends once more. Such plans are problematical and amusingly are reminiscent of the many "farewell tours" of Patti and other opera stars in the olden days. . . . A fine letter from **Arthur Tidd** some weeks ago told of his well being and his interest in gardening, shopwork, and the Tidd Genealogy. . . . Letters from classmates are scarcer than the proverbial hen's teeth, but are mightily appreciated and are also needed for these notes.—**S. C. Prescott**, Secretary, Room 16-317, M.I.T., Cambridge.

'95

Our last Class Book was put together for our 25th Anniversary in 1920. We would like to bring our own records about our surviving members up to date by adding an outline at least of members' interests, business, pleasures, etc., up to these times. It is always interesting to read and to note the varying leads that form the life pursuit as one's age changes, and to note the influence, if any, the early M.I.T. training has had on later life. These notes will be for our own records and not for publication except with your permission.—**A. D. Fuller**, Assistant Secretary, 120 Tremont Street, Boston, Mass.; **Luther K. Yoder**, Secretary, 69 Pleasant Street, Ayer, Mass.

'96

Reverend **Guy L. Morrill**, retired, of Canandaigua, N. Y., is at work on a manuscript despite eye deficiencies that require him to dictate. Last June he represented Princeton Seminary and University at the inauguration of his son as President of Park College. He writes: "Some of the richest memories of my life are connected with Boston, with the English High School Class of '92 and the M.I.T. Class of '96. I have had the satisfaction of several books being published in connection with my work with the General Council of the Presbyterian Church." . . . Contributions to the current drive should be sent to Second Century Fund, M.I.T., since '96 has no class collector since the death of **Henry Grush**.

A card has come from **Fred B. Owen** and his wife Clara in Fort Wayne, Ind. Mrs. Owen says that Fred has difficulty walking and some deficiencies with his eyes. Fortunately she is quite able to be about and doing. Fred wrote as follows: "Dear classmate of M.I.T. I came to Fort Wayne in 1905 thinking I would be here for two or at the most three years. Here I am located at the age of 87. I like the place and still enjoy memories of M.I.T. I enjoy getting news from M.I.T. although I never had the pleasure of the facilities across the river as you know.

Thank you a lot for your note." . . . **William H. McAlpine's** long and outstanding service to the Corps of Engineers and the Federal Government has been recognized in the naming of McAlpine Locks and Dam. This was formerly Lock and Dam 41 at Louisville, Ky., on the Ohio River, as provided in Public Laws 66-462 approved by Congress, May 13, 1960.

Charles Hyde wrote on his Christmas card that he received the Boston Herald with the M.I.T. supplement. "It is a splendid contribution to the accomplishments of our beloved Alma Mater." A letter was enclosed, "The Hyde Family in 1960," in which he tells what the family is doing. Mary Hyde, his sister, had her 91st birthday on December 17 in Manchester, Conn. His daughter Margherita and her husband Allison Dunn, Chief of Water Resources of National Park Service, live in Washington, D.C., where Charles spent October. His daughter Helen and her husband John Gibbs, Jr., live in Berkeley, Calif.; Helen continues her work at the University. His daughter Katharine and her husband Alfred Williams live in Belvedere on a site overlooking San Francisco Bay. "I have gained steadily in health and strength. Nursing service was discontinued in April, and in May I was able to go to the doctors bi-weekly. I can now meet evening and other engagements and do some carpentry and gardening. I am thankful for blessings, because of heritage, home, family and friends. Bohemian Grove Encampment, last half of July and all of October spent in Washington were highlights of the year."

Frederick T. Rundlet died on October 28, 1960. Late of Cambridge, he was 86! He was with the class '92-'94 in naval architecture. When he came to the Alumni dinners with Dr. **Rockwell** a few years ago he enjoyed himself. For many years he was with the U.S. Customs Service.

. . . **Winthrop Coolidge** died November 9, 1960. A letter of sympathy was sent to his son Winthrop K., '23, with whom he and his wife, who died in June 1958, lived for the past few years. He was active in the family business, Chicago Copper and Chemical Co., where he was responsible for 30 manufactured products for 50 years. He semi-retired in 1947 and totally retired six years later. His son has been with the business, of which he is now president, since 1927. Winthrop enjoyed 58 years of happily married life. They traveled to Europe, Pacific Coast and New England. Summers were spent each year near White Lake, Mich., and in their later years, winters in Florida. The family of four children listed in the '96 book has expanded to 14 grandchildren and one great grandchild.—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline 46, Mass.; **Henry R. Hedge**, Assistant Secretary, 105 Rockwood Street, Brookline 46, Mass.

'97

I have just learned of the sudden death of our secretary **Augustus C. Lamb**, on January 22. He had written of the se-

vere winter and bitter cold from his home in Amherst, Mass., and that he was much affected thereby. Our classmates may recall that at our final class meeting as undergraduates **John Collins** was elected secretary and Gus Lamb assistant secretary, both for life. Since both have passed on it is now in order for two loyal classmates to volunteer to carry on, one as secretary and one as assistant secretary, in order that the Class of '97 may still have some means of dispensing news and to prepare for our 65th Reunion, now but one year hence. The class records, including the minute book, largely of undergraduate meetings, are available at Mrs. Lamb's home in Amherst. Having previously acted for five years as secretary, clearly in an unauthorized manner, I believe I have done my share. So speak up, old boys, and show your continued loyalty to your class so that, unlike an old soldier, '97 shall not "fade away."

I never knew Gus intimately, but recall his tenor voice and his membership in the '97 barber shop quartet with **John Howland**, I believe **Baker**, and one other. His life-long business connection, I believe, was with American Writing Paper Company in Holyoke, Mass. Someone who knew him better will, I trust, write an obituary about Gus and send it to The Review.

The following changes of address were sent to Gus from the Alumni Register. **Charles H. Sweetser**, Course I, formerly of Palo Alto, is now at Rogue River Manor, Medford, Ore. . . . **Edward P. Brown**, Course III, formerly of Wolfeville, is now at R.R.#3, Kentville, Nova Scotia, Canada. . . . As of January 1, 1961, the class had a balance of \$330., so no bills for dues have recently been sent.—**John P. Ilsley**, Treasurer, 26 Columbine Road, Milton 87, Mass.

'98

April is an historic month in the Annals of M.I.T. In April, 1861, William Barton Rogers received the act creating the Massachusetts Institute of Technology. In April, 1961, just 100 years later, it is proposed to celebrate the Centennial of this historic occasion. The Committee in charge of the Centennial Celebration mailed out in February an attractive brochure, announcing the programs. This attractive brochure is bound in thick cardboard, displaying on the front cover three medallions: the one at the top enclosing the M.I.T. "Mens et Manus" seal; in the middle one a black and white sketch of the Globe (over which the graduates of M.I.T. have spread); and at the bottom, a large capital C, indicating the century mark. Turning inside, we are met with a pen and ink sketch of the front of Old Rogers on Boylston Street, and the celebrated "Roger's Steps" on which in our student days we frequently gathered.

We quote, in part, the next page: "Just one hundred years ago, on January 11, 1861, 37 leading Boston citizens met in Mercantile Hall on Summer Street to support William Barton Rogers' plans for

a new kind of educational institution in Boston. Before leaving that night they signed an agreement which Dr. Rogers later endorsed as the 'Original Act of Association of the Institute of Technology.' Barely three months later, on April 10, 1861, Governor John A. Andrews approved the Act of the General Court of the Commonwealth creating the Massachusetts Institute of Technology. Just as Dr. Rogers looked ahead in founding M.I.T. to foresee the power of scientific study 'as a means of strengthening the mind, cultivating the senses of observation, and forming habits of accurate examination,' so will the Institute which he founded look forward—in celebrating its Centennial. The week ending on April 9, 1961, will be devoted in Cambridge to a varied discussion of the problems posed for contemporary society by its growing dependence upon the achievements of science and engineering. Alumni, students, faculty, and other friends of M.I.T. are invited to participate in this timely program."

Then follows the program, as far as arranged, for Friday through Sunday, April 7 through 9. We will omit the details of the program, as shown in the brochure for you have all probably received later notices, filling in the omissions. Toward the end of the brochure is another attractive feature, the front of the Rotunda and porch in the Great Court at Cambridge. A truly remarkable program is being arranged. If possible, come to swell the number of enthusiastic alumni and friends of M.I.T. assembled at this historic occasion.

We are obliged regretfully to announce the passing of three classmates: **Maurice F. Delano**, Course I; **E. N. Milliken**, Course VIII; and **Karl W. Waterson**, Course VI. Concerning Maurice F. Delano, we quote in part from the November 11, 1960, issue of the Vineyard Gazette of Vineyard Haven, Mass., as follows: "Maurice F. Delano, who in the years from 1905 to 1929 carried the fame of the Vineyard to important centres near and far through the prize poultry of the Owen Farms which he managed and later owned, died on November 6 at the home of his daughter, Mrs. William Polishook of Haverford, Pa. He was 85."

"A civil engineer and a seller of prize poultry," you say. "What has prize poultry to do with engineering?" Listen! Continue to read the article in the Vineyard Gazette: "He was born in Troy, N.Y., but moved to Falmouth, Mass., with his parents when he was 14. From earliest boyhood he had been interested in poultry, and in Falmouth his father started a flock of a few chickens for him. He became an avid reader of poultry magazines and was soon exhibiting at shows. At the request of his father, he disposed of his flocks and entered the Massachusetts Institute of Technology, specializing in civil engineering. After leaving M.I.T. and practising civil engineering for a few years, he returned to his first love, and, in this field (poultry) soon attained eminence, doubtless based on William Barton Rogers' principles.

"In 1905 the late William Barry Owen of Vineyard Haven, Mass., induced Del

to come to the Island to manage the farms which Mr. Owen had established with breeding fowl imported from England. In a short time Del established a world-wide reputation with his prize winners at the poultry shows. He shipped birds to most of the states of the U.S.A. and to Australia, South Africa and Asia. The Owen farms contained 110 acres and in their heyday the stock comprised some 8000 birds. Some of the prices realized seem almost fabulous. He sold a white Orpington cock for \$1,000, and 150 selected eggs for \$450. The great incubator of the Owen's farms held 4,600 eggs; and in a single day in April 1927, 2000 eggs were hatched. The annual business of the farms passed \$80,000 at a period when this was a real sum of money. In 1956 at the 83rd annual convocation of the American Poultry Association at Buffalo, he was presented with a plaque in recognition of 52 years of loyal service to the Association. He had already received similar plaques from the Wayne County Poultry Association and from the Rhode Island Red Club of America. For many years he served as judge at important poultry shows. At the time of his death, he was the oldest licensed poultry judge in the United States. Mr. Delano married the former Helen C. Halliday of Suffield, Conn. He is survived by three children: Miss Margaret Louise Delano; Mrs. Polishook, the former Eleanor H. Delano; and Maurice F. Delano, Jr.; and six grand-children." . . . Del was always interested in '98 and M.I.T. affairs. He attended our class reunions, pitched ball well in the impromptu games, and contributed generously of his time and means to '98 and M.I.T. We shall indeed miss him.

We are getting together suitable articles about **Ed Milliken** and **Karl Waterson** with the assistance respectively of Mrs. Milliken and Mrs. Waterson. . . . Through the courtesy of the Alumni Association we have the following new address for **William F. Steffens**: 33 Douglas Ave., Yonkers, N. Y. . . . There seems to be some mix-up about the address of the secretary. Until next May, it will be c/o Hotel Beaconsfield, as it appears below. If there is any confusion on the part of the sender, the secretary's permanent address is: 2 Gregory Street, Marblehead, Mass., from which address it has been arranged to forward all mail. All the best to all the boys and girls of '98.—**Edward S. Chapin**, Secretary, Hotel Beaconsfield, 1731 Beacon Street, Brookline 46, Mass.; **Frederic A. Jones**, Assistant Secretary, 286 Chestnut Hill Ave., Brighton 35, Mass.

'99

Word has been received of the death of **George Edward Lynch** on November 30. I am indebted to his daughter, Mrs. Albert W. Atwood, Jr., of Los Angeles, Calif., for the following information regarding his life history. George was born in Foxboro, Mass., and received his preparatory education at the Chauncy Hall School in Boston. He specialized in the

field of dust and fume removal from industrial plants. He was the inventor of the Lynch Granular Filter for Hot Gases and the designer of the Lynch Dust Control System. He was a consulting engineer for the Phelps Dodge Corporation, Anaconda Company, Nevada Consolidated Copper Company, Climax Molybdenum Company (U.S. and Mexico), Consolidated Mining and Smelting Company of Canada, International Nickel Company of Ontario, Selection Trust of London, Braden Copper Company Chile, and many others. Many people are in good health today instead of suffering from silicosis, because of the installation of his devices for the removal of industrial fumes and dust from crushing plants. George was a pioneer in his chosen field and took satisfaction in the fact that he was making working conditions more comfortable and healthful for industrial workers in mineral work.—**Burt R. Rickards**, Secretary, 349 West Emerson Street, Melrose 76, Mass.; **Percy W. Witherell**, Assistant Secretary, 84 Prince Street, Jamaica Plain, Mass.

'00

Stan Fitch left home on February 3 for a trip of a month or two visiting relatives and friends in Antigua, Guatemala, and Tegucigalpa, Honduras. Stan has been quite a traveler since his retirement. This is, we understand, the eighth time that he has visited Central America in the past nine years. Last fall he visited **Harry Grant**, in Jerico, Vt., and a brother in Charleston, S. C. Those of us who have attended our reunions at Cotuit will wish to extend our deepest sympathy to Stan's daughter, Katherine Forbes, whose husband, Stuart Forbes, died last September. He was vice-president of the Forbes Lithographic Company of Chelsea. They had their home at Annisquam, Mass., where Katherine will continue to live. Her daughter, Barbara Hartman, lives in Tucson, Ariz., and Stan plans to visit her and his great-grandson on his way back from Central America. . . . **Harry M. Thayer**, Course V, died January 12, 1961 in Covina, Calif., where he has lived for the last 15 years. He was born in Brockton, Mass., July 10, 1877 and was educated in the public schools there, graduating from the High School in 1896, valedictorian of his class. In our freshman year he was adjutant of the battalion. After graduation he was employed by the Southern Cottonseed Oil Company in Augusta, Ga. In 1902 he was special representative of the Wood Products Company, Buffalo, N. Y. From 1903 to 1907 he was with the Procter & Gamble Company in Cincinnati, Ohio, in charge of various departments, and following that until 1918, with the same company as plant superintendent in Kansas City and Port Ivory, N. Y. Following this he was general works manager for the N. K. Fairbanks Company. Later Harry left the manufacture of soaps and oils and took up the business of organizing and directing financial campaigns for philanthropic work. About 1944 he retired from active

business and moved to Covina, Calif., where he has since lived quietly and happily on a tract of a half acre covered with flowers and fruit trees. There he has kept active in public and church affairs, the Rotary Club and other community activities. He has been president of trustees, chairman of the Building Committee and ruling elder of the local Presbyterian Church. Harry was married in 1901 to Annie Alden of Brockton, who died in 1957. He is survived by two sons, Gordon of Richwood, N. J., and Robert of Palmsdale, Calif., and five grandchildren. Another son, Lawrence, of Hyannis died in 1956. Harry and Annie attended many of our reunions at Cotuit and Larry and his wife joined us at dinner on at least one occasion.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton 65, Mass.

'01



There are two items to report this month. **Greta Gray**, a Course IV graduate who has taught in California for many years died, as reported by her sister, on January 19. She retired some years ago and lived in Palm Desert, Calif., where she suffered from rheumatoid arthritis. Her final address was Cathedral City, Calif. If any classmate has further news of Miss Gray I should be glad to relay it to the class.

I again call attention to our 60th reunion on June 10 and 11 at Dedham and urge you to answer the questionnaire which is being sent out this month as soon as possible to help the reunion committee. . . . Writing this in February with the snow two feet deep, I am looking forward to seeing bare ground again. If you read **Hayden Pearson's** comments last fall from Greenfield, N. H., on the coming winter, you will remember that he said that chipmunks' tails pointed forward over their back and that we would have a hard winter, and you realize that he could not have been more right.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N. H.

'02

According to a letter received by **Arthur Collier** from **John Marvin** the latter has given up living at Mar-Field in Evergreen in the mountains and has settled down comfortably in an apartment in Park Manor in Denver, 1801 East 19th Ave. The Manor is a building put up by the Presbyterian Hospital Corp. for retired folk exclusively and John says it's like living in a luxury hotel or club and his neighbors are very congenial. His personal health is now good and he is back to canes after a spell on crutches due to his accident on the cruise as reported in the notes at the time.

We have to report the death of Prof. **Everett O. Eastwood** on December 15, 1960. The following is from a clipping received from the Alumni Office: "Prof. Everett O. Eastwood, 84, Professor Emeritus of mechanical engineering at

the University of Washington died in his sleep at his home. Prof. Eastwood remained on the faculty after his retirement in 1947 as head of the mechanical and aeronautical engineering departments. The educator went to the University as head of a two man mechanical department in 1905. He was named head of the aeronautical engineering department when it was established soon after the First World War. Prof. Eastwood was a pioneer in the field of air-conditioning. He was a consulting engineer for the Alaska-Yukon-Pacific Exposition. A native of Portsmouth, Va., he held several degrees from the University of Virginia, including the degree of civil engineering and master of arts. Prof. Eastwood was a past president of the American Society of Heating and Ventilating Engineers and a past manager and vice-president of the American Society of Mechanical Engineers. He was also a member of Sigma Xi, science honorary; Tau Beta Pi, engineering honorary; and Sigma Alpha Epsilon, social fraternity. Survivors are his wife, Nelle, two daughters, Mrs. Oliver A. Ashford, and Mrs. Louise Bunker, four grandchildren and five great-grandchildren."

These notes are being typed in the midst of the third blizzard of the winter with snow drifts of four to five feet all around the house and the harbor nearly frozen over. We trust they will be read in more genial weather.—**Burton G. Philbrick**, Secretary, 18 Ocean Ave., Salem, Mass.

'03

L. Martin Harwood, aged 80, of Longmeadow, Mass., died January 5 in Wessex Memorial Hospital. He had been associated with a firm formed by his father, F. W. Harwood & Son, manufacturer of gold leaf, with establishments in Springfield and Baltimore, Md. He was active for years in Longmeadow Boy Scout organizations and the Highland Branch of the metropolitan Y.M.C.A. He was interested in all the sport programs offered by his town. He was a member of Roswell Lee Lodge of Masons, the Retired Business Men's Club, Blandford Country Club, and First Church of Christ, Congregational, of Longmeadow. He was born May 14, 1880, son of the late Frederick W. and Winifred Risley Harwood. He was a graduate of Central, now Classical, High School, and of M.I.T. in 1903.

A more cheerful note was received by the secretary recently from our devoted Dean Emeritus **Andrey A. Potter**, VI, of Purdue University. He retired from the university in 1953 as dean of its engineering schools and he modestly states that he tried to follow the advice in the Sermon on the Mount: "Whosoever shall compel thee to go with him one mile, go with him twain." The Purdue Alumni News elaborates on his busy career. Andrey continued to serve as advisor to government agencies, educational institutions and professional groups. In addition, as president of Bituminous Coal Research since 1950, he has been con-

cerned with the development through research of smokeless and automatic coal handling equipment; the reduction of air pollution in coal burning plants; and in building more basic knowledge about coal. He has served on the Board of Directors, Air Preheater Corporation, since 1950 and also as its consultant; for the State of Indiana during 1954 on surveys of building facilities and governmental relations; and on the Advisory Committee to Notre Dame University on Self Study in 1958-9. Through the appointment of President Truman, he was a member of the Board of the National Science Foundation for eight years, ending in 1958. Through 1958 and 1959 he was consultant on engineering to Brazil. He retired last year from the presidency of the Bituminous Coal Research and, though starting on his "third mile," is now moving at a less streamlined pace. He confines his leisure to being a visiting professor at Purdue and several other universities and to retaining connections with one company and one government agency as consultant. This allows time for enjoying the companionship of his devoted wife, whom he married in 1906.

Our reminiscent note for this issue is taken from the speech of Professor Emeritus Charles M. Spofford, '93, to his classmates at their 50th Anniversary in 1943. He said in part: "In that far-off year of 1889, when we came as freshmen with hearts 'young and gay,' in the words of the recent popular book, conditions were quite different from these today. There was no New Deal; one did not feel it was right to be supported by the state, and accordingly exerted himself so as to try to be self-supporting, not only in youth but also in old age. There were no radios, automobiles, or airplanes; golf was practically unknown; gasoline was used for cleaning only, and oil for lighting; in consequence, there was neither the gasoline nor oil shortages which form such important subjects of conversation today. Telephones were few, and a house lighted by electricity was rare. Highways were elementary as compared to those of today, although while we were students, the Institute offered for the first time a course in Highway Engineering, partially financed by bicycle companies."—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

We are pleased to note that one classmate has recovered from the general epidemic of writer's cramp, and has come through with a nice letter. **Moise Goldstein**, Course IV, writes under the letterhead Goldstein, Parham and Labouisse, Architects, New Orleans 12, La. His letter indicates he has had an interesting and successful career. After graduation he spent three months at the American Academy in Rome. One of his sons has become an architect practicing in New Orleans and one is on the Electrical Engineering staff at M.I.T. His daughter is

the wife of a doctor at the University Hospital in Ann Arbor, Mich. Some of the buildings designed by his firm are the American National Bank Building, Times Picayune at New Orleans, several buildings at Dillard University, Tulane University and the Flint-Goodrich Hospital. They have collaborated in the New Orleans Civic Center and the International Airport. Moise is a fellow and former director of the A.I.A. and a member of the National Architectural Accrediting board. Glad to hear from you, Moise. Keep up the good work.

The **Langs** had planned to spend the winter in the Virgin Islands where they built a nice home last year but Carolyn has not been feeling well so they decided it was not wise to get so far from home base. The tough winter we have been having in New England is a poor substitute for the balmy breezes of St. Thomas. . . . A note from **Harry Rollins** indicates that he and Glendora may be in New England soon after you read this. We recommend such trips to others.

We are sorry to report the loss of another classmate. **Simon J. Martenet** died on December 11. Several gifts in his memory have been received by the Alumni Fund of which he was a regular supporter. Mr. and Mrs. Martenet attended our 50th reunion and he was always interested in class affairs. The family has our deep sympathy.—**Carle R. Hayward**, Secretary, M.I.T., Room 35-304; **Eugene H. Russell, Jr.**, Treasurer, 82 Devonshire St., Boston.

'05

My very best news-hawk, **Willard Simpson**, has come through with a very interesting letter, too long to give you in full, but I must quote part of it: "The day your letter came to me, the thermometer was at the bottom, as far as we are concerned. It was down to about 24°, a cold blue norther blowing with winds about 20 miles an hour that made it seem like 10° below 0. It lasted a solid week and chased everyone indoors and stopped all of our work. Construction work just stopped. Up there, you know, they just waddle through it, prepared, but we are not. Yes, I do remember Bill Green. **Bill Green** and **Senger** were the first two Tech men I met on Rogers' steps at Boston, and we were friends around for quite a little until we got in different courses in the later years and got separated. I remember him well as he was active and popular all through our days at Tech. As I remember, we played football for a little while together until Harry Tyler wrote me a nice note one day and told me that he noticed I was playing on the football team, and he also noticed that my English was very poor. He advised me to pay more attention to English and less attention to football. So, I quit football and missed the association with a fine bunch of fellows. **Hub Kenway** was one of them. I shall never forget that the coach one day asked me where I played. I had left West Texas Military Academy down here, playing a fullback,

mainly because I could kick the ball about 50 yards every time. He tapped me on the shoulder one day and asked me, 'Who said you were a fullback?' I said, 'I don't know, my last coach did. I guess just because I could kick a ball.' He said, 'How would you like tackle?' I said, 'I don't know, let me try it.' He put me at right tackle, and oh man! that was the place on a team for me. It just shows how an experienced coach can guide fellows the best. I played tackle for many years after that, even up until I was 35 in what we call down here independent football. Everything is served up first to the tackle, and he busts it open and breaks up all of the plays, and that is just what I like in football." His reference to our class football team caused me to look up the pictures and lineups in the 1904 and 1905 Techniques and I find that about the only ones now living are Blount, Lindsly, Schonthal, Crowell, Win Taylor, Lawrence Fuller and Hub Kenway. And I noticed we did lick '04 and '06.

A letter from **John A. Meggison, VI**, tells me of nearly continuous travel "from Chicago to California" in his Bible Class lecturing, a thing which he has been doing for many years. He was with us about two and one-half years, when he left to enter his chosen field. Working in industry at intervals allows him to continue his ministry. . . . **Wallace** and **Ruth MacBriar**, our "globe trotters" report that 1960 was their sabbatical year. "With the exception of a brief trip East for the holidays we have stayed at home for a year." . . . Another couple, who do much travelling, **Harry Kendall** and wife, have been vacationing in Hawaii. Because Harry writes, "all the same people here year after year," I conclude it's an annual habit.

A. Warren Wells, III, writes in regard to his move to Vernon, Fla. (Star Route 1): "Don't expect to get into as many activities as you, but have fine neighbors in a rural area where I can garden and have chickens, and am within walking distance of a good fishing river. So far Florida has given us a chilly reception, weather-wise, but we hope for better days soon." . . . **Bert Files**, who retired as general manager of Property Management Corporation of Boston last August, explains his change of address to Pleasant Street, R.F.D., Norwell, Mass., thusly: "My son bought a large house in Norwell and asked me to help him in his remodeling business and suggested that he construct a small house near by for Alice and me. This house is now about finished and we plan on moving in next week." The Quincy Patriot in a half-page story tells of the remodeling and restoration of this old house, gives great credit to the junior Files and to their sidewalk superintendent, T. Herbert.

We should continue to pass bouquets to our Class Agent, **Bob McLean** for his good work in squeezing out money for the Alumni Fund. His last report shows our average for this year as \$210.00, and modestly gives credit (as he should) to a single large contributor. Bob is not our only octogenarian, but from the standpoint of stick-to-it-iveness and imagina-

tion he's the youngest man in the class. Did you get his little joke about figures? I still think I can beat him at cribbage. . . . At this writing I believe the **Kenways** are in St. Thomas. When I last saw Hub he reported that Helen had recovered nicely from her hospital siege of a few months ago.

Supplementing my recording of **Bill Green's** death in the last issue of *The Review*, I offer the following obituary from his home-town paper in Gloversville, N. Y., issue of December 28, 1960. "William Green, 78, native of Gloversville, N. Y., died in a Providence, R. I., hospital Monday. He had been in ill health for the last five years. Mr. Green was born in Gloversville, the son of James and Sarah Burton Green. He was graduated from the Gloversville High School. After his graduation from the Massachusetts Institute of Technology in 1905 he associated himself with a member of the faculty to head a group of engineers. They did industrial engineering during World War I. He following the profession of engineering and teaching mathematics. At the close of the war he entered the government civilian service and worked on the development and manufacture of mustard gas. Mr. Green was known to the glove trade through his invention of a machine to stretch glove leather. He took up the study of astronomy and built a planetarium projector, which is now used in Brown University in the teaching of astronomy and navigation. His last work as a teacher was in the preparatory school in Putney, Vt. The survivors include: his wife Mrs. Barbara Knox Green of Barrington, R. I., three children, Martha Green of Washington, D. C., Mrs. Fisher Pearson of Weston, Mass., and James Churchill Green of Arlington, Mass.; five grandchildren; one sister, Mrs. Raymond Mills; and two brothers, Gideon George W. Green and James W. Green, Jr., of Gloversville; and nieces and nephews."

Those who have attended our Cape Cod reunions of the past several years will be saddened to hear of the death of **Lovell H. Parker, I**, of Washington, D.C. I quote from an obituary from the *Washington Star* of January 17, 1960. "Lovell Hallet Parker, 78, a tax consultant and former congressional revenue specialist, died today in Georgetown University Hospital. Mr. Parker, who lived at 5300 West Bard Avenue, Bethesda, served as chief of staff of the Joint Congressional Committee on Internal Revenue Taxation from 1926 to 1938 and played a prominent part in the drafting of tax legislation during that period. Since then he had been a tax consultant in private practice here. A native of Osterville, Mass., and a graduate of Massachusetts Institute of Technology, Mr. Parker began his career as an engineer. He worked for the Pennsylvania Railroad, New York State and the United States Shipping Board. In 1924, after several years of practice as an appraisal engineer, he entered tax work as chief engineer for a Senate committee investigating the Bureau of Internal Revenue. Two years later he took over as staff chief of the joint committee. He wrote a number of tax

studies and reports. While with the joint committee, Mr. Parker was cited as the Nation's outstanding tax authority by the late Senator Pat Harrison, Democrat of Mississippi, who headed the Senate Finance Committee. Representative Doughton, Democrat of North Carolina, then chairman of the House Ways and Means Committee, once commented that 'there isn't a better tax expert in the country.' Mr. Parker was a dedicated golfer and a long-time member of the Burning Tree Golf Club. Several years ago, in recognition of his long membership and deep interest in the club, Burning Tree's board of directors voted him a life honorary membership. He leaves his wife May, of the home address, and three daughters, Mrs. Armistead Williams Gilliam of Burke, Va., Mrs. W. C. H. Needham of Tokyo, Japan, and Mrs. Paul N. Gardner of Chevy Chase, Md." In acknowledging a letter I sent attempting to convey class sympathy, Mrs. Parker stated that Parker's death was caused by a malignant stomach tumor, of which he had never been aware, and which had never caused him any suffering.

Whenever I hear of a classmate moving from one address to another in the same town, my guess is that another couple has tired of "rattling around in a big ark of a house" and moved to a small apartment. This may be the case of **Edward C. Smith, V**, whose new address is 12547 Lake Avenue, Lakewood 7, Ohio.

I have just learned of the death of **Albert G. Prescott, II**, on February 12, 1961. More details in the May issue. . . . The editors received the following notice from the A. W. Banister Co., Inc., regarding Albert Prescott: "Albert G. Prescott graduated in the class of 1905 from M.I.T. In 1914 he joined the firm of A. W. Banister Co., Inc., in Cambridge in the capacity of manager. In 1942 he acquired control of the corporation and since that time has been its treasurer. His residence was 278 Lake Avenue, Newton Highlands. In his 79th year, following a brief illness, he passed away on February 12, 1961."—**Fred W. Goldthwait**, Secretary, Box 32, Center Sandwich, N.H.; **Gilbert S. Tower**, Assistant Secretary, 35 North Main Street, Scituate, Mass.

'06



In 1861 the legislature of the Commonwealth of Massachusetts granted a charter which started the Massachusetts Institute of Technology on its road to destiny. Fifty years before, in 1811, the legislature had granted a charter which started Massachusetts General Hospital on its road to destiny. Early last February three days of meetings, luncheons, and dinners, with a noteworthy array of speakers, national and international, celebrated the 150th anniversary of M.G.H. On the second day of the Convocation at a luncheon in the Oval Room of the Sheraton-Plaza, M.G.H. honored 15 of its graduates for outstanding service to medicine, and presented to each a citation and a medal struck to commemorate the

150th anniversary. In the front row of the *Herald's* photo of those recipients is Dr. **James H. Means**, former chief of the medical services at M.G.H. (likewise former head of the Medical Department at M.I.T.). The following day Dr. Killian and Dr. Stratton were at the head table at the luncheon and Dr. Stratton, in introducing Dr. Rusk, referred to the ever-increasing contributions of science in the medical field, and the many years of fruitful cooperation of M.G.H. and M.I.T. Marion and I were pleased to see and hear Dr. Stratton and Dr. Rusk on TV in the evening a few days later. What a far cry from 1811.

One of my good correspondents is **Bob Cushman, II**, whose hobby you may recall, is pictures, data, etc., of unique and interesting ships. In a February letter he told of his correspondence with W. A. Baker, XIII, '34 (Mayflower II), and D. A. Fahlquist, '59, who I believe was then stationed at the Woods Hole Oceanographic Institution. Through the good offices of our embassy in Rome, Bob had received photos and design data from the Italian Engineer, Pier Luigi Nervi, of a reinforced concrete ketch, which he had designed and built. Being a salt water man I wonder if his ketch won any prizes in competition. Now and then Bob gets conflicting data and has something else to work on. In his P.S. he sympathized with us Easterners who have been taking such a licking weather-wise, while out in Portland he had his power mower out and many flowers were in bloom. . . . Another classmate, **Bill Abbott, VI**, made the *Herald* editorial page recently with a letter to the Editor, entitled "Stop Wildcatting," in which he contended that "under contract law, if one party defaults, the other party has the option of legal action to require enforcement or damages, or to declare the contract void." Bill seems to suggest why not act on that basis when a "wildcat" strike develops and let the strikers stew in their own juice until they are ready to get to work, and then start to bargain from scratch.

Before the Alumni Council meeting in January, President **Kidder** and Vice-president **Chase** sat in with me at the Faculty Club to discuss plans and program for our 55th next June. A few uncertainties were later clarified and the resulting letter which went to the full mailing list should have reached all of you long before this, in fact, the preliminary returns should be arriving in Wellesley Hills. Be sure to send yours promptly if you haven't already done so. I know that a few have some major deterrent but with around 40 per cent of the class still listed as living (perhaps semi-retired) we should have an interesting and enjoyable get-together. Messages on the replies, if you can't come, will be like bread cast upon the waters.

William A. Sheldon, III, for many years resided in Alma, Colo. A few years ago Bill remarried and built a home in Homestead, Fla. So last fall, we recently heard, he asked to have his address changed to Homestead, P.O. Box 1433. Stop in when you run down to the Keys for some fishing! . . . **Llewellyn A.**

Parker is still a partner of Parker & Parker in Los Angeles but the address is now 1227 Temple Street; shortly after that change in January he sent in what may be a residence address at 10654 Lindbrook Drive, Los Angeles 24. . . . **Walter A. Hopkins, III**, is still in Pasadena but now at the Acacia Inn, 811 E. Washington Street. . . . **Harold E. (Cy) Young, VI**, has finally left the Foshay Tower in Minneapolis, I suspect, as in January he asked to have his address changed to R. #1, Savage, Minn. . . . Are you getting The Review regularly? They go astray now and then, and I was reminded of it when my January number failed to show up. Anybody else missing an issue?—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

'07

Kenneth Chipman thoughtfully sent to me a large number of clippings about **Clarence Howe** taken from various Canadian papers. I quote from an editorial in the Ottawa Journal of January 3, 1961, headed "C.D." "There are public men who because of certain talents or characteristics win to a temporary popularity, become subjects of doubtful acclaim. There are other public men who, because of different and higher qualities, light beacon fires of public trust, compelling the finer things of respect and affection. In the last category, without challenge, we can place C. D. Howe. He was a builder, a giant among his contemporaries, a great man of our nation, inviting its gratitude. But beyond that he built treasures in the hearts of friends, and they will keep his memory until their time has come."

The Gazette, published in Montreal on January 3, 1961 carried an editorial on "A Great Canadian." I quote the closing paragraphs: "His place in history is that of a very great Canadian. It is the place of a man whose qualities of drive and dispatch played so vital a part in carrying this country through the threat of destruction in war, and of chaos in peace. And the greatness of his place in history will be all the more secure in that he never sought it, or seemed much to care. His is the enduring greatness not of what was vainly said or sought, but of what was truly faced and done." . . . The following amusing incident was gleaned from the same issue of the Gazette: "In 1935, W. L. Mackenzie King sold Mrs. Howe on the notion that, were he to enter Parliament, he'd be able to spend more time at home. C.D. finally agreed to stand, was elected, duly entered the King Cabinet and wound up spending less time at home than ever before. On one occasion when he returned, he was greeted by his entire family. 'Children,' Mrs. Howe is reported to have said, 'this is your father. I'm sure you've heard me speak of him often.'"

I wrote Mrs. Howe and the family a letter of condolence on behalf of the class and promptly received a most gracious reply. In part she wrote, "Living in

Canada has perhaps kept Clarence rather out of touch with the majority of classmates, but he always enjoyed very much any opportunity of meeting any of them. I appreciate most gratefully the sympathy of yourself and the other classmates."

We all received recently from the Alumni Association a brochure headed "M.I.T. Alumni Make News 1960." The Association culls the class notes for interesting and important news items. Did you find '07 represented there? On the back page, under Incidental Intelligence, was the following from our '07 notes: "In August, Milton E. MacGregor, '07, climbed Mt. Washington via Tuckerman's Ravine, a climb he first made 49 years before." . . . The Boston Herald carried the obituary notice of **Eugene V. Potter**, who died at the South Shore Hospital, Hingham, on February 12. Gene graduated with our class in Course I. His thesis was a joint effort with **Phelps Swett**. During his life he was very active in the civic life of his home town of Hingham, Mass., where he served as a trustee of the public library and was president of the Cooperative Bank of Hingham and also a director of the National Bank of Plymouth County. His life work was in the insurance business, where he was an insurance agent and adjuster for the Hingham Mutual Fire Insurance Co. His wife, Orpha (Lee) Potter, a son John of Hingham, and two grandchildren survive him. I wrote to the family extending the sympathy of the class.—**Phil Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville 60, Mass.

'08

The Centennial Celebration banquet will be held at the M.I.T. Faculty Club in Cambridge on Saturday evening, April 8. Ladies are invited for cocktails and the President's reception at 6 P.M. and dinner at 7:15 P.M. The Class of '08 has been assigned to Private Dining Room No. 1. We will probably be connected to the Delegates Banquet at the Hotel Statler by closed circuit TV. This will be a very memorable event and one which you should most certainly attend.

As mentioned in the last Review, Dr. **Harold Osborne** has been awarded the prized Edison Medal of the A.I.R.R. Dr. Osborne, who is a consultant with the International Electro-technical Committee, was cited "for his contributions to the art of telecommunication and his leadership and vision in extending its application; for his achievements in the co-ordination of international communication and in national and international standardization; and for his advancement of the engineering profession." The Edison Medal was founded in 1904 by an organization of associates and friends of Thomas A. Edison, to serve "as an honorable incentive to scientists, engineers, and artisans to maintain by their works the high standard of accomplishment which had

been set by Edison." The medal is awarded annually by the American Institute of Electrical Engineers, world's largest organization in its field. Among past recipients of the award were George Westinghouse, Alexander Graham Bell, Robert A. Millikan, Alexander Dow and **Vannevar Bush**, '16.

Dr. Osborn has rendered significant service to the government as well. He was special consultant to the Office of the Secretary of War, World War II, and a member of the Telegraph Committee, War Communications Board, World War II. He has also served on the Industry Advisory Council of the Federal Specifications Board, and the Industry Advisory Committee for Supply Cataloging, Munitions Board. A past president of the American Institute of Electrical Engineers, Dr. Osborn has served on its Board of Directors, and as chairman or member of many committees. He has been a director of the Research Corporation and Graphite Metallizing Corporation, and is the author of many technical articles. Dr. Osborn is also a fellow of A.I.E.E., the Acoustical Society of America, the American Physical Society, the American Association for the Advancement of Science, and the Institute of Radio Engineers.

We are sorry to report the death of **Tommy Orr** on October 28, 1960 in Gulfport, Fla. For the past several years he has lived in St. Petersburg following his forced retirement, because of a heart condition, from his contracting business in Cincinnati, Ohio. . . . **Geoffrey W. Welch** died at his home in Longville, Minn., on October 1, 1960.

Charlie Steese writes from Carlisle, Pa., that he and Mary are sorry we are not holding a reunion on the Cape this June, but they plan to get up for Alumni Day. They say: "Our plans a month ago were to go down onto the Texas Gulf Coast perhaps as far as the Rio Grande, but we delayed starting and were caught in this past series of snow storms. We hope to really start next week and may return from the southwest through a part of Florida. You know, all northerners think of having a house in Florida when the mercury drops and the wind howls about the eaves. Then the winds moderate and the mercury moves up and one thinks only of how hot, humid, far away and how big the mosquitoes are in Florida, and like our classmate Lord, are glad to go to the Cape."—**H. Leston Carter**, Secretary, 14 Roslyn Rd., Waban 68, Mass.; **Leslie B. Ellis**, Treasurer and Assistant Secretary, 230 Melrose Street, Melrose 76, Mass.

'09

You may recall that in 1957 **Hazel Gram**, widow of our former president, initiated with a generous contribution a 1909 Memorial Fund, the income from which is to be used for scholarships with preference to descendants of members of our class. She has written to the widows of members of the class stating the objective of the fund and inviting them to

contribute no matter how large or small the amount. With their contributions the fund has now reached a total of about \$6,300 from 11 contributors. Those who so far have been memorialized by the fund are: Felix A. Burton, IV; James H. Critchett, VIII; Benjamin W. Dow, II; Harold I. Eaton, XI; Carl W. Gram, X; Harry L. Havens, XI; George A. Haynes, VII; Reginald L. Jones, VI; Helen Longyear Paul, IV; William R. Reilly, III; and Clark S. Robinson, X. The income has now been released for scholarship use and the fund will be listed among the available scholarships in the next Institute catalogue. We are all deeply grateful to Hazel Gram not only for initiating this fund but also for her continued interest in the class. As you may recall, she attended the 50th Anniversary and she also continues to subscribe to *The Review*.

Our energetic **Florence Luscomb**, who never ceases her investigations of world events, recently visited Cuba and has sent the following report of the conditions there as she found them: "No one can understand the Cuban Revolution who does not know the facts of the Batista dictatorship it overthrew. Batista had by military seizure destroyed Cuba's legal Constitution, had looted the public resources of countless millions, had slaughtered 20,000 citizens, often with hideous tortures, and left the general population in semi-starvation, illiteracy, disease and unemployment. Although, of course, in two short years only a beginning has been made to end these evils, it is little short of miraculous how much has been accomplished. In three weeks in Cuba in December and January I saw and learned something of the land reform, the spread of education, the promotion of health and the vast housing program. Ownership of land had been concentrated in a handful of great landlords and corporations; more than half the cultivated land raised only sugar cane, making Cuba dependent on this single market while the country had to import almost one-third of its food; sugar provides only three or four months' work and turns the peasants into landless farm laborers and starving most of the year. Castro's agrarian reform has broken up these land monopolies; and I saw the 66-acre farms given individual peasants and visited a number of the co-operative farms raising diversified crops to feed Cuba and giving year-round employment at decent pay to its farmers.

"Whereas roughly one-third of Cuba's children had been utterly without schools and another third had had only three grades or less, I saw schoolhouses in every hamlet. The most exciting education development I saw was the School City, a bold solution to the problem of getting education to 20,000 children scattered through the 125-mile long, roadless range of the high Sierra Maestra. A children's city is already partly built and functioning with class rooms, dormitories, health facilities, sports fields, school gardens and guest accommodation for visiting parents. The children go home every six months and parents can withdraw them at any time. Never have

I seen happier, more zestful or intelligent youngsters. I had a glimpse of the University at Santiago de Cuba where one new handsome modern building has been completed and others are under construction. For the first time faculties in nine branches of science, engineering and architecture have been added. In all Cuban universities education has been made free, with living expenses also provided.

"Running neck and neck with new schools were the thousands upon thousands of new homes being built everywhere. Families which had huddled in a single room in vile city slums or in mud-floored shacks in the country now have attractive four- or five-room concrete houses, largely pre-fab, with electric lights, electric refrigerators and modern plumbing at rents, including utilities, of usually \$15 to \$35 a month which will give them ownership in approximately 20 years. Schools, clinics, recreation fields and stores are usually part of each housing development. The new year-round agriculture plus these numberless construction projects have cut Cuba's chronic unemployment by over a third. I had an interesting talk with one of Cuba's most eminent doctors who runs the three hospitals under the Havana University Medical School. He is one of the happiest men in Cuba for Castro's Government increased the money available for his hospitals from \$2,500,000 to \$7,900,000, and he no longer has to feed patients on 24 cents a day.

"I heard Castro speak three times. This son of a wealthy landowner, endowed with a mighty physique, a brilliant mind, and a phenomenal memory, with a Doctorate in Law before he was 24, could have led a life of personal renown. But he is driven by a burning compassion for the sufferings of the downtrodden and the exploited, a consuming passion for social justice and for Cuba. His hours-long radio talks are the technique by which a consummate teacher educates an illiterate people to a clear understanding of the purposes of his Revolutionary Government. Said a Cuban journalist to me, 'Castro is our Lincoln.' One evening in the dining room of the Habana Libre Hotel the waiters passed the word among us, 'Don't go away. Fidel is eating in the kitchen. As soon as he's finished he'll come out to meet you.' So when the Premier of Cuba was through dining with the hotel help, he chatted informally with the foreign visitors and from 10 P.M. to 3 A.M. answered all the questions they put to him. Castro is definitely no Communist. The United States itself, however, compelled him to seek trade with the Communist nations when we cut off Cuba's sugar quota and finally imposed our total trade embargo, except for food and medicines. Castro seeks trade, however, with every country, and I learned of trade with England, Belgium, France, West Germany, Japan, Canada, Spain, and Israel, in addition to the Communist bloc. The defense of Cuba against counter-revolutionary invasion depends less on the small standing army than on the People's Militia which numbers several hundred thou-

sand. These are volunteers who receive no pay, buy their own uniforms, and are given guns by the Government. If Castro were a dictator holding the people in terrorized subjection, would he distribute arms to them? Our country, which itself was born of a revolution, should rejoice when a revolution brings freedom and betterment to a long oppressed people."

We have learned that **Tom Desmond**, I, our vice-president, has recently received the honor of election as a Fellow of the New York Academy of Science. The class congratulates Tom on having received this high honor.

A clipping told of the death on December 31 of Helen Weill, wife of **Melville Weill**, at Port Jervis, N.Y. She was born in El Paso, Texas, but she and Mex grew up together as children in Mexico City. They were later married and celebrated their Golden Anniversary in November of last year. There was no '09 wife who attended our many reunions and class functions more regularly than she and none is better known to the members of the class. As Mex says, "Helen entered into the spirit of our class and enjoyed the reunions over the years where she made many lasting friendships." We have written to Mex and he has replied as follows: "Thank you very much for your letter of January 12 expressing understanding and sympathy of the class and yourself over Helen's passing on."

We have received a clipping from *The Minneapolis Star* telling of a memorial service held for **Daniel Belcher**, II, aged 74, on Thursday, January 12, at the Lakewood Cemetery Chapel. His death occurred on January 9. He prepared for the Institute at the Oliver Ames High School, Easton, Mass., and at the Institute was a member of the Mechanical Engineering Society and of the Tug-of-War Team in his freshman and sophomore years. After graduation he was employed in Winchenden and Readville, Mass., and joined the Bemis Brothers Bag Company in 1916 at St. Louis, Mo. He moved to Minneapolis, Minn., in 1922. When he retired he was senior vice-president and director of the company. Our records show that in 1912 he married Miss Rhoda Hurst of Easton, Mass., and there are three daughters, Carolyn (Mrs. Maxwell Fischer), Rhoda, and Lois. We have written to Mrs. Belcher expressing the sympathy of the class as well as our own.

We have received from Robert Forbes, 33, Secretary of the M.I.T. Club of East Tennessee, an obituary notice from a Knoxville paper telling of the death on February 6 of **Bernard R. Fuller**, I, 72 years of age. He was being driven home from a regular noon meeting of the Technical Society of Knoxville, which he attended nearly every week, by his daughter, Mrs. Kaman, with whom he lived since his retirement. Last year he was very active for the T.S.K. in lining up speakers for the high schools in connection with Engineers' Week. The last time that the M.I.T. Club had a meeting he and Mrs. Kaman attended. He prepared for the Institute at the Montclair Military Academy; was a member of the

Civil Engineering Society, Chess Club, of which he was vice-president, Fencing Club, and the Pennsylvania State Club of which he was vice-president. Our records show that his work took him to North Carolina, New Jersey, Buffalo, N. Y., as well as Knoxville, Tenn. He is survived by three daughters, Mrs. G. L. Kaman, Mrs. B. E. Steele, and Mrs. Robert H. Grass, and a son, B. W. Fuller, eight grandchildren and two great grandchildren. We have written to Mrs. Kaman expressing the sympathy of the class as well as our own.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries, **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

'10

Phil Harris and Jack Babcock have sent me notices of the death of **Phil Burnham** on December 27, 1960. The following is from a Wilmington, Del., newspaper: "Philip W. Burnham, 73, a retired architect and Du Pont Company employee, died yesterday in The Memorial Hospital after a brief illness. Mr. Burnham graduated from the Massachusetts Institute of Technology in 1910, after attending the New Church School, in Waltham, Mass. He was an architect with D. H. Burnham and Company in New York City after graduation. He was later associated with Bertram Cunningham, an architectural firm in New York. Later he had his own firm in New York City and Summit, N. J. For 15 years, he was associated with the Du Pont Company in the Engineering Department. He retired in 1953, and at the time of his death was working for the Eileutherian Mills, Hagley Foundation. Mr. Burnham invented the bandage folder machine used during World War II."

Kenneth Armstrong has sent me a program of the Installation of Officers of Order of De Molay of the Opa-Locka, Florida Chapter. In the program he was presented as Dad Kenneth Armstrong conferring the Chevalier Degree. Ken also sent me a copy of the North Dade (Florida) Hub, a community newspaper of Opa-Locka. Evidently Ken has been giving his services as a director of the city commission and planning council. In this capacity his convictions have not been in accord with those of the City Manager. The result was that Ken was requested to resign, which he refused to do. The article requesting the resignation is interesting but not nearly as interesting as Ken's reply. We won't take the space to give a complete copy of this interesting controversy.—**Herbert S. Cleverdon**, Secretary, 120 Tremont Street, Boston.

'11



As of early February, Reunion Chairman **Obie Clark** had received answers from 84 classmates regarding their chances of being at Snow Inn next June.

Only 31 said their chances are excellent. They are: David Allen, Ernest Batty, Eldred Besse, Jim Campbell, Obie Clark, Bill Coburn, Marshall Comstock, Paul Cushman, Fred Daniels, Henry Dolliver, Norman Duffett, Jim Duffy, Leroy Fitzherbert, Joe French, D. P. Gaillard, Gardner George, Jack Herlihy, Phil Kerr, Maurice Lowenberg, Bob Morse, Franklin Osborne, Chet Pepper, Oliver Powell, Ed Sisson, O. W. Stewart, Harry Tisdale, Gordon Wilkes, Howard Williams, Sumner Willis, I. W. Wilson, and Aleck Yereance. The majority will each have a "mate," bringing the total to 55 "excellencies." Seventeen other classmates said their chances are fair, and they are: Roger Boyden, Dick Cushing, Bill Davis, Luis de Florez, Cal Eldred, L. P. Ferris, Bill Goodhue, Charlie Hobson, Ed Kruckemeyer, Stan Lawton, Charlie Linehan, Roger Loud, Roy MacPherson, Carl Richmond, John Romer, Don Stevens, and Erving Young. Thirty-six others said their chances are poor. Here's hoping the tides will change before June and that we'll have a 50-year celebration to be proud of.

A letter from **Harry Tisdale**, Lagoon Road, Ft. Myers Beach, Fla., said: "We are still feeling the effects of our visit with Donna last September 11. Most of the rough spots are cleaned up, though. It was quite an experience. We have been through three hurricanes, but this last one was the first time we have seen water rushing towards and surrounding the house, about two feet deep. We had practically no damage within the house, but quite a bit on the outside. Of course power, lights, and phones were out, but we had our own well water, candles, kerosene stoves, and flashlights. Four homes within sight of ours lost their roofs, and everything inside was a mess. The beach proper at the north end of the Island suffered a lot of damage, but most of it has been restored. All the motels are operating as usual, and the winter season is in full swing again."

Emmons Whitcomb attended a gathering of the M.I.T. Club of Mexico City last November as special ambassador from the Alumni Council. He was presented with M.I.T. steins, 'estilo Mexicano,' and a warm invitation to the 13th Annual M.I.T. Fiesta in Mexico, held in March. . . . The following quotations, featuring **Luis de Florez**, are from a clipping from the Weather Section of the January 30 issue of Newsweek, sent in by Leroy Fitzherbert. It says: "Meteorologists in New York last week were bombarded with a flat challenge to do something about controlling the perennially unpredictable weather. The challenge came from Rear Adm. Luis de Florez, U.S.N.R. (Ret.), who still pilots his own amphibian on long hunting trips to Canada. He said: 'It is strange indeed that the American people display the same fatalism and resignation about the weather that our remote ancestors did thousands of years ago. We do not seem to realize that the problem of weather control, gigantic as it is, can be subjected to the same sort of attack which brought about our great discoveries in the fields of flight, nuclear power, medicine.' De

Florez wants weather research funds tripled, a sharp increase in education of new meteorologists, and an all-out attack on the dynamics of the atmosphere to pinpoint the triggering mechanisms essential to weather control. This would include the familiar techniques of cloud seeding with dry ice, silver iodide crystals and carbon black. But it would also be directed toward the discovery of devices to control tornadoes, hurricanes and long-term climate trends. Even slight improvements in rainfall might open vast territories to agriculture. It is a practical goal, it can be done, and we have the tools to do it, he said." As for himself, **Fitzherbert** wrote: "I am waiting out the winter at home but appear to be busy each day with a chore or two. Expect to make the reunion in June."

Grant W. Arnold, VI, passed away November 2, 1960. He was associated with Boston Insulated Wire & Cable Co., Ltd., Shaw Street, Hamilton, Ontario, Canada. No further details were received. . . . **Aleck Yereance**, I, moved March 1 from Arlington, Va., to 110 Valley Court, Falls Church, Va. He wrote: "The news from the Cape is that the Inaugural Blizzard did quite some damage there, but there has been nothing in the Cape Codder, our weekly paper, to indicate that our reception at Snow Inn next June will partake of zero temperatures. I'm sure we're all looking forward to a real hot time."

The following additional address changes have been received: **Edwin Pugsley**, VI, from New Haven, Conn., to P.O. Box 396, Monticello, Fla.; **Stuart Copeland**, II, from Ellsworth, Maine, to P.O. Box 236, Venice, Fla. The addresses of these two classmates have changed back and forth several times from the above in New England and Florida, which undoubtedly means that they have two residences, one for the winter, and one for the rest of the year. . . . Well, that's all, folks, for this month.—**Henry F. Dolliver**, Secretary, 10 Bellevue Rd., Belmont 78, Mass.; **John A. Herlihy**, Assistant Secretary, 588 Riverside Ave., Medford 55, Mass.

'12

First off, I want to ask everyone to contribute to the 1912 Alumni Fund this year. Last year we only managed 96 contributors from an active class roll of 209, or 46 per cent. This is lower than the classes just before and just after us. The Class of 1911 managed 65 per cent. I know you will hear from **Albion Davis** along these lines so let's all give him a hand.

Freeman A. Pretzinger, IV, is active in his profession as an architect in Dayton. Business address is 1155 Reibold Building, Dayton, and his home address is 204 Forrer Boulevard, Dayton 19. He would be delighted to have a call from anyone in this vicinity. . . . A card from **Joe Champagne** states that he is like the fellow who has only the tops of his pajamas: semi-retired. He and his wife do a great deal of travelling, having been to Europe several times, to the Orient

and around the world two years ago. He intends to keep moving as long as possible. He is looking forward to our 50th Reunion. . . . **John H. Lenaerts** left the Cape in November and is now at 1101 Harbor Drive South, Venice, Fla. Give him a ring if you are nearby.

Jay Pratt writes that he and Priscilla spent three months in Egypt, the Near East and Europe last spring and enjoyed every minute of it. Priscilla was attending a world meeting of Girl Scouts in Greece, being a very active member of the International Committee. They cruised the Greek Islands and had 10 days on the Dalmatian Coast, then to Italy and Oberammergau for the Passion Play. They also covered Austria, Switzerland, Paris and England. At home in Chicago he plays golf as long as the weather permits and then turns to curling for exercise. They were starting for Mexico just after the holidays and this will be their 18th year there. They expect to be home around April in time to get their garden going.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 35, Texas.

'13

This year is just one hundred years since 37 leading Boston citizens met with Dr. William Barton Rogers and the General Court of Massachusetts created the Massachusetts Institute of Technology on April 10, 1861. Will you be present on April 7, 8 and 9 to celebrate this Centennial? We shall look for you. . . . Once again, we should remind you that 1913 will hold an off-year reunion. Your local committee has decided that we will hold the reunion at some motel within 15 miles of Cambridge so that you still busy Bostonians and New Englanders will be within walking distance or at least a few hours drive from your business or home. Details of the reunion, June 9, 10 and 11, will be forwarded to you before you read these notes.

We have a few more Christmas greetings on which to report. . . . **Allen Brewer** was quite newsy as usual. He has been made a life member of the Association of Iron and Steel Engineers, with no more dues to pay. Allen is somewhat worried about the "frontier 90 miles from Cuba." He expects that he and Maurine will come North next April. Yes, Allen, we shall be looking for you two in Canton. . . . From Janet Mattson: "Let me know if you ever head this way. We are spending Christmas with Daddy and Jo in Denver." What a girl, still an adopted 1913-teener. . . . The **Rands**, of course: "Greetings, Folks, Except for destroying our antenna and blowing over five palm trees, Donna was very kind to us, although it was terrifying, coming as it did in the black of night. Enough of hurricanes for us. Harold is still running around in his little Lectracar. Folks say that he doesn't need speech as his face and eyes are so expressive. At present he is enjoying his remote control TV. Hope that you

will get down our way this winter. Best wishes from Esther and Harold."

Only this morning we were much pleased to receive a letter from **Howard Currier**, who has neglected the Secretary lately. The gladness immediately turned to sorrow. The news: **Gerould T. Lane**, 68, of Hope Ranch, Calif., a former executive of the Eastman Kodak Co., in Rochester, N. Y., who moved to Santa Barbara in 1955, died of a heart attack in his home on January 12. Jerry played a prominent part in the development of photographic paper, particularly in the color field. He served in many capacities with Kodak including general superintendent of Eastman paper division and assistant general manager of Kodak Park, prior to his retirement. At the time of his death, Jerry was president of the Hope Ranch Park Homes, and was serving on the Sheriff's Civil Service Commission. Also, he was a former member of the board of directors of La Cumbre Golf and Country Club. He is survived by his wife, the granddaughter of a former mayor of Rochester, N. Y. To his wife Jean we offer our wholehearted sympathy for Jerry was one of our closest course mates and friends. From Howard Currier, we quote in part: "For several years, Jerry, **Stanley Parker** and I were the only '13ers here in this paradise of the Pacific Coast. Then not long ago Stan moved up to Atherton, in the Bay area, and now Jerry is gone I am the only one left here. We all belonged to the Retired Professional and Business Men's Club and thus were in contact frequently at meetings as well as socially. Jerry's many friends here will feel his loss greatly." Howard continues with a plug for the lovely weather in the balmy 70's and 80's. And we further quote: "It was indeed a big regret to me that it was impossible to attend the last five-year reunion, but I am looking forward to the one in '63 and if physically able will be among those present. Best wishes for a good year in 1961, and kindest regards." After our last two storms, real snow, you make us jealous, Howard. How about a reunion in June this year?

We have the pleasure of announcing the retirement of another classmate who has performed an outstanding job for his community, state and country. **Warren A. Gentner**, Chief Engineer of the Metropolitan Commission water bureau (of Connecticut), on January 13, 1961 ended a 47-year career with the commission. Warren joined the bureau in 1913 as a temporary engineer for the layout of pipelines from Canton to West Hartford for the Nepaug Dam. Evidently, he was awarded a permanent position soon after this effort. He helped to design and construct the Nepaug Dam, the Saville Dam at Barkhamsted and the Goodwin Dam at Colebrook. Warren is a former president of the Connecticut Water Works Association and the New England Water Works Association, and has written numerous articles on his profession for technical journals. The Gentners live in Wethersfield, Conn. Both their son and daughter are married. Well, Warren, now that you are a man of leisure we expect to hear from you and will expect to

see you and your wife at our June reunion. . . . Indeed, it certainly was a pleasure to receive an 8-page letter from our old (meaning in time not in age or effort) friend, **Bill Mattson**. Yes, we miss Bill. We appreciate all of the good advice on how to run a reunion and how to obtain more notes from our retired gentry. Bill has given us a resume of his activities since retirement and suggests that you other unemployed do likewise. Bill's Story: 1. American Locker Co., Inc., retired him automatically in 1957 at the age of 65 after 23 years of service as vice-president of the company; 2. After retirement in January, as a widower spent three months in Fort Lauderdale, Fla., basking in the sunshine and moonlight. Returned to Newtonville to keep bachelor quarters as daughter Janet had departed for San Francisco, where she is still enjoying business and continuous wolf whistles. After a summer course in City Planning at M.I.T., supplementing his business experience and 17 years of Newton politics, including 12 years on the Board of Aldermen, Bill decided that there was no future in city planning for him; 3. After a very strenuous encounter with several attacks of virus, he flew to the West Coast where under Janet's loving care, he recovered to chairman the very successful 1913 45th Reunion at Oyster Harbors on the Cape. The Reunion was far-reaching for our Bill, for with the assistance of several of us "Cupids" and after an ardent courtship, he was married to Josephine Davis (sister-in-law of **Larry Mart**) in September of 1958 in Denver, returning shortly to Newtonville. Following a typical changeable New England winter, the Mattsons sold their Newton property and moved to Denver, deserting Massachusetts for citizenry of Colorado. They bought a beautiful new ranch house about 10 miles outside the city in rather mountainous surroundings. 4. Since settling in the West, Bill and Jo are leading a very delightful life, with many sociable friends, while either or both are executives in many of the charitable and community projects. Several Newtonites, as well as the **Larry Harts**; the **Charlie Thompsons** and the **Bill Brewsters** have been their guests. Good luck and best wishes from us all here in New England and we know that any of us fortunate enough to travel to the Rockies or the West Coast will certainly take advantage of the Mattson hospitality. Now that Bill has broken the ice why don't some more of you five million of President Kennedy's unemployed, or better, ex-President Eisenhower's retirees take pen in hand and let us know how you idle the time. . . . Dues are due. . . . Sign up for the 1913 48th Reunion.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

As many of you know so well, General **Alden Waitt** is just about the most active of our retired Fourteeners. You perhaps will recall that he had not tried painting

until his retirement. Just recently he gave an exhibition in San Antonio of 28 of his paintings at the Guild Galleries. In two days over 500 persons visited the galleries, and many of the paintings were sold at once, or it was requested that they be held, which, as in the old saying, was the proof of the pudding. Shortly he and his wife are leaving for Stuttgart to visit their daughter whose husband is a medical officer. They then expect to pick up a small car and spend several months touring Europe.

Frank Ahern is still continuing to make Washington, D.C., his home. His youngest son is an architect and has just started on a world-wide tour on which he is studying and lecturing. . . . If it were not for the restrictions on Social Security perhaps some of us retired Fourteeners might try a few side lines also. . . . While it is still too early to make a certain statement, your secretary has made plans to leave on July 1 on a new freighter for a Mediterranean trip.

Clarence Smith is now added to the ranks of our classmates who have retired. He is in Saint Petersburg and expects to stay well into April. . . . A pleasant greeting has been received from **John Burdick** of Cranston, R.I. John has not been in too good health recently, but we certainly hope he is recovering. . . . While you fellows are smiling about the wonderful weather in Florida and other pleasant spots, your secretary can say that in Boston the winter this year has been cold and unpleasant. Just to show how seasons are unpredictable, last summer after visiting a friend in Iceland, we went about 200 miles north of the Arctic Circle. When landing just south of it in Norway, we ran into the hottest weather we saw all summer. Of course it was unusual; worst in 100 years. Some of us have become tired of the very changeable weather here. Perhaps that is why your secretary takes a quick sneak to Florida once in a while.—**H. B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **C. P. Fiske**, President, Vista Sierra Lodge, 4801 East Broadway, Tucson, Ariz.; **H. A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'15

What a class—and it's OUR class! On the cold and stormy night of January 27, 22 classmates and Gerry Rooney from the United States Marine Corps met at The Chemists' Club in New York for our annual Class Dinner. After cocktails the Pirate opened the dinner with a rousing "We Are Happy" cheer. We had our usual type dinner meeting: reminiscings, personal experiences and a little ribaldry thrown in. **Frank Scully** praised our class spirit and interest and then **Ben Neal** brought us up to date on his Fiftieth Fund which is doing very well. Have you contributed yet? After dinner most of us went up to our headquarters room in the club for a pleasant long evening of nostalgia. It's great for us to get together like this and everyone enjoys it. Present

were Dick Bailey, Bill Brackett, Bill Campbell, Alton Cook, Sam Eisenberg, Ralph Hart, Larry Landers, Azel Mack, Hank Marion, Archie Morrison, Ben Neal, Millard Pinkham, Gil Peakes, Wally Pike, Larry Quirk, Pirate Rooney and his handsome son Gerry, Sol Schneider, Frank Scully, Bur Swain, Ed Whiting, Chris Wolfe and Ray Walcott. We missed several of our regular attendees, some of whom had to make last minute cancellations.

Long time no see was **Millard Pinkham** and we're glad to have him back. A first time man was **Archie Morrison**, who came down from Boston and I'm sure he'll be with us again. Long distance winners were **Larry Quick**, Middletown, Conn., and **Ben Neal**, Lockport, N.Y. Loyal men! **Gil Peakes** is a philatelist authority, specializing on United States issues. **Hank Marion** continues to enjoy his retirement motoring everywhere with Virginia. **Ray Walcott** is taking it easy but manages to find time to look after 1915 at The Tech Club of New York in the Biltmore. **Bill Campbell**, ever the handsome raconteur, kept us amused with his repertoire. Wonderful! The Boston crowd had a jolly ride down and back in their comfortable drawing room on the New Haven, even without running water in the room. **Bill Spencer** and **Orton Camp** sent letters of regret. We had all hoped to see **Andy** and **Henry Daley** with the Philadelphia crowd of Dick Bailey, Sol and Ed, but they couldn't make it. **Jerry Coldwell** was on his way to Korea, Okinawa, and Formosa on a military installation inspection. How does he do it? That irrepressible **Louie Young** wired us "Greetings from the Old Howard, Waldron's Casino, the Brunswick, the Westminster and Louie Young. Best regards to all." This was a laughing reminder of our undergraduate days on Boylston Street and clearly indicates the low level of Louie's activities. A resounding and warm applause for Larry and Bur expressed our thanks and appreciation for the magnificent job they did again in setting up this splendid New York class dinner for us.

During the great Second Century Celebration at M.I.T. in Cambridge, we shall have a Class Dinner on Saturday, April 8 at The M.I.T. Faculty Club. All classmates who will be attending this celebration should certainly plan to be at this big dinner. Detailed notices later. Our annual Class Cocktail Party (no charge—no collections) for everyone including ladies and guests will be held on the afternoon of Alumni Day, June 12, at M.I.T. Faculty Club. Barbara Thomas and **Al Sampson** again will head the committee for this party.

Ben Neal wrote: "On January 19 I had lunch at the Buffalo Club, with Whit Ferguson '22, who, as you probably know, is a big wheel in Buffalo affairs, and a leader in the SCF here. Young Dudley Todd was there from Cambridge, to give us the inside dope. A very interesting meeting. Ferguson asked me to be Chairman of the Initial Gifts, or the Special Gifts in the Buffalo area, with a quota set of \$88,000. No idea how we will come out, but it will be fun try-

ing anyway." . . . **Phil Alger** wrote "My youngest son, Andrew, married Frances Anzalone of Cleveland, in Evanston, Ill., on December 31, so the whole family went out to Chicago for the occasion. There I looked up our classmate **Verne C. Kennedy**, and was royally entertained by him and his good wife. Verne says he has never been to one of our class reunions, but I have some hope of persuading him to come to our 50th anyway. He is very well and busy with farflung projects, and he has no intention of retiring. However, he has taken up oil painting as a hobby, and I was very much impressed indeed by his creations, which are real pictures not in the least abstract. My other son, John R. M. Alger, is moving to Chicago this month to become manager of engineering for the Washer Division of the Hot Point Company, so we'll have two family centers in the Chicago area. Therefore, we will have to visit there more frequently in the future. If you will give me the names and addresses of any of our classmates out there I will appreciate it." . . . That was nice of Phil to see Verne. I can always supply any of you with the addresses of classmates you might like to visit in your travels.

In an extremely humorous and personal letter, **Phil Small** sent a big generous check for Ben Neal's Fiftieth Fund and another for Max's Alumni Fund. Phil heads up the very successful architectural firm of Small, Smith, Reels and Draz, 1010 Euclid Ave., Cleveland. Many thanks, Phil for your splendid gifts and a warm, friendly feeling with all those laughs in your letter. . . . Here's a fascinating letter from **Ernie Loveland**, Hotel Montemar, Torremolinos, Malaga, Spain. What an interesting and exciting experience he has had: "I want to let you know I am still alive. I was called abroad on a consulting job the middle of April and spent seven months in Casablanca, Morocco, broken into occasionally by business trips to Madrid and Paris. After I finished the job, took a small fruit boat to Rouen, France, and continued by train to Paris where I picked up a small Renault Dauphin which was waiting for me and set out for Southern Spain. I stayed here for some weeks and then went back to Casablanca to spend Christmas and New Years with French, non-English-speaking friends, whom, by the way, I regularly beat playing Scrabble in French. We spent Christmas in deep snow (in Africa!) in the High Atlas Mountains and then returned to Casa. My drive to Casablanca for this trip, and the return, each of them the long way around through the back country, plus various week-end trips, during the first seven months, and one three day trip across the Atlas and down to the Sahara has shown me a great deal of that country which is beautiful and also interesting. The Arab culture is quite different from anything we see in the States. I have a date to return for another extended trip through Southern Morocco over the Easter holidays. Here, I am very busy, although again retired, playing tennis, studying French and Spanish at the Berlitz School. (All my work at Casa-

blanca was conducted in French, but I am dissatisfied with my facility in it.) At present I do not plan to return to the States until November or later. I may go further north when the weather gets hotter. At present the temperatures are ranging from a low of 50° to high of 70° although snow is visible on the top of the mountains in the distance. I have also seen quite a lot of France and Spain on my drive down to here, again, not by the shortest route. And finding my way around, getting accommodations and service in the small town hotels, which I have patronized, and where English cannot be understood, has been fun. My best to you and give my regards to the boys at the next class dinner. They would have been proud of me (perhaps) listening to me flirt in French with a French divorcée." Imagine playing Scrabble in French (it's tough enough for us in English). Tennis at his age makes him the Ponce-de-Leon of 1915. Our chief concern is whether the French divorcée said "Yes." What a man!

Christmas Card messages continued from last month's column: **Loring** and **Ruth Hayward**, Taunton, Mass., sent a reminder of freshly baked bread he used to get for us. . . . **Otto** and **Helen Hilbert**, Corning, N.Y.: "We had another nice trip this fall with five days in Paris, 15 days in Mignon on business and then some sight-seeing, four days on the French Riviera, two weeks in Italy and nine delightful days from Genoa to New York on the "Leonardo da Vinci." . . . In answer to our warning to get the glasses ready for our annual visit to them, **Tess** and **Gabe Hilton**, Clearwater, Fla., wrote: "What do you mean get the glasses out? We haven't put them away."—a very hospitable couple! . . . **Ken** and **Ester Johnson**, Boonton, N.J.: "We are still breathing." That's a lot for Ken, who has had some tough hospitalizations recently. . . . **Vince** and **Marion Maconi**, New Haven, are sailing on July 5 on the "Oslofjord" for a North Cape cruise ending with an auto tour of Norway and Sweden. **Vince** retired last year and turned his firm, The Dwight Building Co., over to his son **Richard**, M.I.T. 1944. . . . **Charlie** and **Bee Norton**, Vinyard Haven, Mass., have found a new way to send the old holiday message: bouncing it off an "Echo" up in the skies, which **Bee** had drawn on a hand made card. . . . **Ted** and **Fran Spear**, Rumford, Maine, announce they are going to stay put this year. Due to so much unrest and uncertainty, **Ted** wrote they have lost interest in Caribbean cruising. He said he is adjusting to his retirement but keeping plenty busy. . . . **Ray Stringfield**, Los Angeles: "Our youngest daughter, **Dorothy**, and her five children moved in with me after **Lucile's** death, so I'm getting younger every day, but sneak off to the desert pretty often to give the kids a rest from their crabby grandpa. I may get east again next spring, so don't be too surprised if I give you a ring." We'd certainly be glad to see **Ray** here again and hope he makes it. . . . **Speed** and **Molly Swift's** card showed a pretty wooded winter snow scene and **Speed** wrote: "I've got a spot

looks like this. Who knows? Perhaps those are my foot prints in the snow?" What a guy. . . . On an unusually clear and pretty colored photo of the arch in Washington Square, N.Y., **Ray** and **Pat Walcott** wrote: "We'd be remiss if we forgot to remind you that we very much enjoyed being at the Reunion in June." . . . Those are all lovely sentiments from a fine group of old friends. There will be no pressure campaign to collect those class dues, so, if you have not already sent yours in, do it now and "Help Azel."—**Azel W. Mack**, Class Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16



Steve Brophy, as chairman of the 45th Reunion, continues to proclaim the big news. The 45th is to be held at the Oyster Harbors Club, Osterville (Cape Cod), Mass., Friday June 9 to Sunday June 11. **Jim Evans**, as secretary of the 45th, reports a big response to Steve's first letter to the class in January. Accompanying the letter was a small booklet, an up-to-date geographic register giving the names and addresses of the members of the Class of 1916. As Steve notes: "The Oyster Harbors Club, one of the finest, will be ours exclusively for the period of the reunion. The golf course will be in great shape, the tennis courts likewise, and for those who can still drink, the bar will be open from noon until bedtime. There will be bridge tournaments, and sailing and fishing for those who sail and fish. Friday evening there will be an old-time Cape Cod shore dinner served on the beach, weather permitting. On Saturday night, the 45th Reunion dinner, with 'costumes,' favors and no speeches, well, maybe one, our President will say a few words. The cost of all this will be . . . etc., etc. This year M.I.T. is celebrating the 100th anniversary of its founding, so the exercises in Cambridge following our reunion will be extraordinary. Alumni Day is Monday, June 12." We are hoping to have several of our co-eds and their husbands. **Jim Evans**, from his card returns, reports that **Elsa Habicht Mueser** and her husband expect to be at the reunion following a flying trip around the world ending in May. **Howard Claussen** lives just across from Oyster Harbors, a matter of a few hundred yards by water, and expects to have his 30-foot new Pacemaker available at the club dock for members who want a "look-see" around the beautiful waters. **Howard** may find himself very busy!

According to **Ralph**, the annual informal 1916 get-together for the Boston area was scheduled to be held at the same stand for good food, Thursday February 16, Joseph's, on Dartmouth Street near Copley Square. Arrangements were made to have a private bar set up from 5:45 to 6:45 P.M. and dinner at 6:45. This has been a popular annual event for 16ers; a number of traveling out-of-towners have been fairly regular attendants. . . . In mid-January **Bob Wilson**, as an AEC Commissioner, left Wash-

ington for a trip around the world on AEC business with principal stops in India and Japan. He expected to give a talk in Trombay on "Reactor Development in the U.S.," in connection with an international gathering on the occasion of the dedication of the Canada-India reactor. While **Bob** has done a lot of traveling in his life, this is the first occasion for a round-the-world trip.

We regret to report the deaths of **Charles Fry** on November 23 in East Orange, N.J.; of **Carl Carstens** on January 17 in Torrance, Calif.; and of **John Hood** on December 23 in Cooleemee, N.C. Messages of sympathy from the class were sent by **Ralph** to the families. The November 26 issue of the New York Times reported: "Charles W. Fry, Superintendent of Essex County Plants and Structures since 1946, died Wednesday at East Orange Hospital after a brief illness. . . . He was a former chairman of the East Orange City Council and had taught at Newark College of Engineering. His widow, **Elsie**, survives."

A birthday card from **Joel Connolly** in Taiwan shows a little girl pushing the junk on which she lives and works, away from a pier in Hong Kong. This appears to be a snapshot that either **Joel** or **Mrs. Connolly** had taken. In January, **Joel** had changed his magazine address to the U.S.A. because they didn't expect to be able to read magazines in the remaining time before they leave Taiwan. According to our records and those of the 1917 Technique, **Joel** is the youngest member of the class; the last of the class of 1916 to reach his 65th birthday, February 14, 1961. Congratulations, **Joel**, on admission to the 65 Club. . . . The President's Report for 1960 listed the following 1916 names in the personnel of the Corporation: Honorary Chairman, **Vannevar Bush**; Life Members—**Vannevar Bush**, **Robert E. Wilson**, and **Thomas D'A. Brophy**. . . . **Cy Guething** continues wise as of old. He wrote in mid-January from Birmingham, Mich., that he was about to leave for Harbour Island, Bahamas, a beautiful spot where he says **Steve Brophy** has stayed "a couple of times." Then: "Speaking of **Steve**, we were invited out to Grosse Point a couple of weeks ago where **Steve** was spending a few days with in-laws." He notes that **Steve** was cocky as all get out because he was expecting to become a grandfather again. At Harbour Island, **Cy** was "to try and get a guide's job, fishing, and if I can't I may fish anyway." Said that if he made enough money fishing, they'd be at the Oyster Harbors Club "for sure," and that they have even put off their summer sojourn to Georgian Bay so as to provide for a stay at Cape Cod.

Will Wyld writes from the little town of Stamford, Vt., just across the Massachusetts line. He has been retired a year and a half and fully enjoys it. He feels fortunate in living in a house well over 100 years old for this provides him with many opportunities to ply the trades of electrical repairing, plumbing, carpentering, cabinet making, gardening and about everything else. Says his efficiency is not always too high and that "if I had to pay myself a dime an hour for

the time I spend, I couldn't afford it." He enjoys winter sports, still skis at a favorite resort only five miles away, Dutch Hill in Heartwellville, which he says Ralph Fletcher doubtless knows. He says he takes the easier slopes and has to resist the pleas of his two local grandchildren to join them on the real trails. He still loves the New England winters "so much that we do not go to Florida until late February or early March so as to avoid the two months that in this part of New England at least are useless." He may miss the 45th Reunion because they have planned a leisurely trip to the coast leaving Florida in April. . . . Early in January we had greetings and best wishes from **Francis Stern** (dictated from Palm Springs, Calif., to Hartford, Conn., no less!) He and his wife flew by jet to Los Angeles on December 20, where they spent two weeks with their daughter and grandchildren. As Francis says: "We have a guest house in back of my daughter's place where we spent a pleasant two weeks with the family. My grandchildren are grown up and once vacation was over, their life was so full we thought it would be best to come along out here to Palm Springs, from where I am dictating this letter. We expect to be here until the latter part of March and if the weather continues as beautiful as today, I will have no complaints."

Frank Hastie, in Dowell, Md., tells of real ice during the winter cold spell. Says that St. John's Creek on which they live and which runs down into Solomon's Harbor by Drum Point, was frozen over several inches thick around Christmas so that people were skating all over. "The day after Christmas we called on new neighbors across the Creek driving approximately 7 miles where we could have walked about 100 yards, but the ice was somewhat uncertain near the shore and it would have been embarrassing to arrive wet to the knees or thereabouts." . . . **Flipp** and Mrs. **Fleming** spent the year-end holidays with their son and family in Dallas, Texas. They had lots of sunshine, although quite cold weather, saw a championship rodeo and the Cotton Bowl football game on New Year's Day. Says: "We enjoyed being with the children, grandchildren and their friends. It was quite strenuous and we had to come home to recoup." As grandparents ourselves, we know what you mean, Flipp!

Ed Weissbach, one of our three 1916 Reverends, wrote at the turn of the year and said that as assistant at Grace Episcopal Church in Merchantville, N.J. (or "associate" as the Rector calls it), his work was not full time and he had been free to get around a bit. Accordingly last year he took another trip to Europe, Italy, this time. Other trips took him to Cape Breton, Nova Scotia, and to see his grandchildren in Nashville, Tenn. And listen, 16ers around and just North of Boston; as of January 15, Ed was to move to Somerville near Boston where he is going to be rector of Christ Church for a period of at least six months. Here's a chance for members of 1916 or any other class to hear Ed as he returns to the New England area. . . .

In February we mentioned the fact that **Willard Brown** received the Gold Medal Award of the Illuminating Engineering Society, the highest honor in the lighting industry. We'll have a copy of the citation at the reunion. Maybe Willard will bring the medal (quite a chunk of gold: one-quarter pound!). He retired from G.E. in April, 1960 and has his shingle out: "Consulting Engineer—Lighting" to keep his hand in. Says he has one client in this country and a sort of client in England. "Then I have this four-year job as president of the U.S. National Committee of the International Commission on Illumination, that seems to take a day a week plus. So, after doing the things I want to do, I don't seem to have time for the few things I have to do. I suppose that is a healthy condition." Early in January, Willard and his wife were taking off for what "is high adventure for ones who have never been south of Key West, although more than familiar with Europe, a week at St. Maarten in Netherlands West Indies, a week at Fort de France in the French West Indies, and two and one-half weeks at Barbados in the British West Indies. Flying, of course, to save time." He says first priority in his plans is awarded to the 45th Reunion.

Back in January, **Dina Coleman**, from whom we had requested some of the philosophy which only he can give you—know-how, reported that he was "still devoid of any philosophical thoughts, having in mind the anticipated pleasure of seeing George Kittredge, '17, in Barbados next week. As you may know, George has returned there permanently and after a couple of cocktails last spring, I agreed to go down to see him." Dina says that incidentally he is off cocktails until the next time he takes one. We're all looking forward to seeing him again at the 45th.

Theodore Bulifant advised that he was moving from Hackensack, N.J., to Lake Worth, Fla., at the end of January and would forward his new address once he was established. . . . We're still laughing over some of the pictures in a booklet "Funny Pictures for Convalescents" that we received from **Bill Drummey** back in December. Bill's new firm, Drummey-Rosane-Anderson, Architects—Engineers, that we announced in the February column was formed by bringing two of his associates into partnership, two, who are, as Bill says, "both Masters and Fellowship Holders from Harvard, but despite that basic error, very stout fellas indeed." The firm is located at the same old address where Bill started in 1923. Among other commissions, they are doing four High Schools in Waltham, Clinton, Bourne, and Saugus. Bill says that in about three years from now, he will with real reluctance step out of active participation after 40 years of private practice. And what will he do then? "Probably a thesis on quahog methods of communication, from my home in Gray Gables."

Just after New Year's, **Emory Kemp** said he was starting off on January 11 for Sarasota, Fla., and expected to return about March 10. He was to carry with

him a list of some 15 '16ers, located mostly in Florida, boys he hoped to contact as he passed through their towns and with whom he hoped to initiate discussions regarding the unlimited advantages of attending the 45th on Cape Cod. . . . A year ago January, we reported that **Arthur Shuey** in semi-retirement in Shreveport and his wife, Mary Willis Shuey, who had retired from teaching English in Centenary College there, were enjoying the opportunities for wider travel. In 1959 they had spent two months in Spain and a month in England. We understand the traveling continued into 1960 with trips to New Orleans in January, to Huntsville, Ala., in February, where son Henry works as a physical chemist, and then in April, a cruise to Nassau, the San Blas Islands, Cristobal and the Panama Canal to Panama City. In July they started for the West Coast, visiting friends and doing some fishing at known likely places along the way. Then to Crested Butte, and to Marble and Beaver Lake in Colorado for 10 days, up to Warren AFB, Cheyenne, for more good fishing; then Saratoga and Rawlins, Wyo., to Brigham City, Utah, for a visit. On to Yosemite, over Tioga Pass to San Francisco and Fisherman's Wharf, Chinatown, Top of the Mark; north through Napa Valley and the Redwood Trail, to Tacoma, Seattle and Victoria, B.C.; back through Olympia National Park, on through the petrified Ginkgo trees park to Grand Coulee Dam, and along Salmon River during the salmon run; eastward to Sun Valley and Craters of the Moon in Idaho, back to Cheyenne, etc. This spring they plan a trip of several months in several countries. . . . **Harold Gray**, in January, was working on plans to take his wife and daughter on an eight-week trip to Scandinavia and France, including a North Cape cruise from Bergen, Norway. The trip would start about the middle of June and might interfere with attendance at the 45th. Should he not make it, this will be the first 5-year reunion missed.

And in conclusion your secretary wishes again to express appreciation for the many letters and cards received. The final message is much like the starter: Remember the 45th Reunion dates, June 9, 10, and 11. And do as Steve Brophy has suggested. Take the names of some of those in the class who have been closest to you and call them or write them and urge them to come to the Cape in June. Bring your wife if you can, but come yourself anyway. And be sure to help keep the column full by writing a little and writing often.—**Harold F. Dodge**, Secretary, 96 Briarcliff Road,, Mountain Lakes, N.J.; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass.

'17

Class members who live around Boston, or those who are visiting in the area, may wish to attend the monthly meetings of the M.I.T. Boston Luncheon Club. We are advised that the club continues to

draw good attendance and to have interesting speakers. There are seven meetings per year at the Old Union Oyster House, 41 Union Street. The January meeting recorded the following 1917'ers present: Brick Dunham, Harry Sandell, Jack Coffin, and Stan Dunning.

The random notes consist of the following: **Dad Wenzell** was featured in a two-column article in the Wall Street Journal of January 10 in connection with the Supreme Court's decision denying U.S. liability in the Dixon Yates power contract case. . . . The Westinghouse Air Brake Company announced in January the election of **Tom Meloy** to the post of chairman of the Board of Melpar, Inc., a subsidiary. . . . **Stanley M. Lane** was re-elected president of the New England Baptist Hospital at their 67th annual dinner in December. . . . **John A. (Al) Lunn** has been elected a director of the New York, New Haven & Hartford Railroad. . . . **Jack Coffin** has joined the Massachusetts Business and Industry Committee of the S.C.F.

The following was sent to The Review by the Assistant Secretary, S. C. Dunning: "Without **Win McNeill's** knowledge or consent it is pleasant to include the following resolution: 'Whereas, Mr. Winfield I. McNeill rendered a signal volunteer service to the National Society for the Prevention of Blindness by making a comprehensive study of office procedures and management practices, including salary and wage classification systems and other personnel policies, and by preparing a detailed report with recommendations designed to effect greater economy and efficiency in the Society's operations, Resolved: That the Society record its sense of indebtedness to Mr. McNeill for the knowledge, time and effort he contributed to this undertaking and convey to him an expression of deep appreciation for the invaluable service he performed.' Win is a director of the Society and **Enos Curtin** is president."

These notes, written in early February, with snow from the last blizzard shoulder high in the Secretary's driveway, will reach you in April when most of people living in the cold sections of the country will be polishing their golf clubs. Here is a golf anecdote: "I'd move heaven and earth to be able to break 100," the golfer said sadly. "Try heaven," said the caddy, "you've moved enough earth already."—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford 7, Connecticut; **Stanley C. Dunning**, Assistant Secretary, 1572 Massachusetts Avenue, Cambridge 38, Mass.

'18

Somewhere in his early education every boy hears the enchanting story of the search for the Golden Fleece, dreams dreams and sees visions of some far away adventure of his own. In the old days it was the vigorous youth who set out upon an argosy of his own. Now we are victims of the benign deception that young men stay home and work hard so they can travel when they are old and have

retired. . . . **Fred Philbrick** writes that he and Hildegard made a trip to Europe last summer, visiting Vienna, East Germany, West Germany, and England. She had a reunion with relatives and friends whom she had not seen in a quarter century. He got acquainted with relatives in England whom he had never seen. Sandwiched between these happy prospects, his discerning eye observed much on both sides of the Iron Curtain, where some say there are wolves in sheep's clothing intent on fleecing one another. Back home in October, Fred was in the hospital a while to have his plumbing overhauled in one of those compromises which are often an unavoidable part of our miraculous process of increasing life expectancy.

Jim Flint and his wife went on their argosy too. His wife writes: "The world really is round! Last spring Jim and I proved it to our satisfaction and very great pleasure. We left New York the afternoon of January 30 by Pan American Airways for Lisbon and returned to San Francisco April 2, after visiting 14 countries and Hawaii. Though some of our experiences were more pleasant than others we would not have missed any of them. In Portugal we drove north from Lisbon to Nazare, one of its many picturesque fishing villages. The women with their seven petticoats and swinging hips are the center of attraction. The petticoats are useful when it is cold for they are turned up and used as capes, being added one by one as it becomes colder. Poor girls probably freeze if the temperature drops below a certain point! The question we are most often asked, 'What place did you enjoy most?' is difficult to answer, for each country had something of interest or beauty or both. However, 'What was the most beautiful thing you saw?' is an easy one. It was the Taj Mahal. In addition to the perfection of its symmetry, the lace work of its marble screens and arches and the beauty of its decorations of inlaid marbles of many colors are wondrous sights. We planned in each country we visited to see more than just the cities. One memorable trip was the ride from New Delhi to Agra. Although it was only 100 miles in length, it took us back a thousand years, for transportation, living, and agricultural conditions are that primitive. One of our most spectacular rides was from Colombo in Ceylon through the jungle to Kandy in the mountains. We had our first experience seeing rubber, coffee, tea, papayas, rice, vanilla beans, nutmeg, cloves, and other spices growing, also our first opportunity to see elephants at work. From Bangkok we drove to Ban-Pa-In, the summer residence of the kings of Thailand, one of whom, Mongkut, hired the Welsh governess, Anna Leonowens, known to us through 'Anna and the King of Siam.' The buildings and temples are filled with beautiful marble, porcelain and jade. The throne room is especially rich and ornate, and the retiring room for the king and queen is furnished with magnificent silks, and an old fashioned china toilet set, complete with slop jar.

"Both Thailand and Japan are like scenes from story books. In Thailand the

many-tiered roofs with snake head ends (I prefer to think they are like the hands of a Siamese dancing girl) make one think of wandering around in scenery from a fairy tale. Japan is a series of beautiful pictures in miniature anywhere one looks, provided there are no modern factories in sight. One almost overlooks the beauties of Hong Kong, the shops are so fascinating. It is a super-duper supermarket. Many articles can be purchased there cheaper than in the country of manufacture. The tailors and dressmakers are what one dreams about. There are opportunities for being cheated too! In only one country did we feel uncomfortable: Indonesia. Foreigners are not very welcome, but the beauty of Bali, the scenery and the women, almost made up for it. (Jim says he prefers to look at Chinese girls.) Fortunately, we stayed well on the trip. Jim attributes it to the lesson he learned from a Turkish friend, who took him to lunch at a fish restaurant on the shore of the Bosphorus. Jim is less than enthusiastic about fish and was having rather a sorry time until his host mixed a drink, half vodka and half fresh lemon juice, and proposed a toast: 'To the disinfectant.' Whenever we feel life is a bit drab we can cheer ourselves by thinking of the dramatic view from the balcony of our Cairo hotel room overlooking the Nile, the beautiful red lounge of the Raffles Hotel in Singapore, or the varieties of people we saw in the Peninsula Hotel in Hong Kong, or the Imperial Hotel in Tokyo. Enough memories of happy experiences to last a life time!"

The custodian of this column and his wife are on a minor argosy of their own, having driven across the continent for the fifth time, just after Christmas. We left Jaffrey Center in a howling blizzard, stopped for a day with a client in New Haven, and then boldly steering ourselves toward the winter delights of La Jolla in southern California, went straight south to Georgia before turning west. After the snowy enlivening of our departure "neither snow nor rain nor heat nor gloom of night" stayed our progress. To this moment (the end of January) every day has been pleasant. We made 3,462 miles in nine days with half a day out for the complete tour of Carlsbad Caverns in New Mexico. (That was the day we went in the hole.) The roads were excellent with the exception of a short piece in New Mexico. Our usual cross continent departure from the casual includes seeing how many different license plates we can spot. Last time we got them all except Mississippi. This time only Vermont and Wyoming were missing. Alaska was at Carlsbad Caverns. As always, we were disturbed by the human hungers, indignities, and uncertain future which have been imposed upon the Negro. As New Englanders we found conspicuous the absence of field stone in much of the country. Not one steam locomotive was sighted, and a new form of tragedy never previously observed was the number of pet dogs which have become the victims of speeding motor cars.

Did you know that fireworks are a traditional part of Christmas and New

Year in the south? There is a roadside advertisement of Harold's Club in Reno to be seen near Minden, La. The variety and nature of religious signs in various states makes one hope that the Creator is either unaware or possessed of an outsize sense of humor. The many completely dry river beds encountered in the last thousand miles were impressive (not a drop in the Rio Grande at El Paso), and so are the two car garages atop the houses built on the La Jolla hillside. It is so steep, there is that difference between streets. In Texas we encountered a man, wife, and three children hitch-hiking to California. In Avondale, Ariz., we saw literally thousands of old Navy airplanes stored in the open beside route U.S.80. At the California border half a dozen of our good New Hampshire apples were confiscated despite the fact there was neither worm nor blemish on them. I rescued two by eating them on the spot. "Alpine Oaks Mobile Estates" turned out to be a trailer camp. Behind a restaurant in California is a sign saying, "The most beautiful garbage in the world passes through this portal." Our one fright was caused by a jet plane going across our path at a low altitude! Once is enough, even though no harm is done. The distance we travelled was much greater east and west than north and south. The north-south weather changes are much greater and for obvious reasons. I am in shirt sleeves today but hear the temperature at home is well below zero. The differences in the temperament of the people is also greater north and south, perhaps because of the weather differential. The golden fleece in California refers to the pyramiding of prices west of the Rockies and to city taxes, county taxes, and state taxes piled high upon the already greater costs. I am here by invitation for three months to do some writing and lecturing. It is a pleasant assignment this time of year.

Ralph J. Bushee of Akron, Ohio, died suddenly at his home in early December. He was an ensign in the First World War, later to be employed for many years in Akron as a sanitary engineer. He is survived by his wife and two sisters.—**F. Alexander Magoun**, Secretary, temporarily away from the delights of Jaffrey Center, N.H.

'20

It is with regret that we must report the death of **Paul Valov** of Red Bluff, Calif. Although in poor health for some time, Paul kept in touch with us by correspondence and was a loyal and interested member of the class. . . . I must also report the death of **Howell N. Tyson** in Pasadena, Calif. He was a professor of mechanical engineering at Cal Tech and a member of their faculty for 24 years. In his field of engineering design, he was considered a remarkably fine teacher. At Cal Tech they consider that Prof. Tyson's influence on the careers and lives of hundreds of students has been very beneficial and important.

Prof Albion N. Doe has left Eureka, Calif., and is back at his old home stand, Bridgeport, Conn. His address in Bridgeport is 15 Rockmore place. . . . I have a new address for **Samuel Schenberg** whose interesting career has been recently mentioned in these columns. Sam may now be reached at 555 East 21 Street, Brooklyn, N.Y. . . . Your class continues to be well represented at the monthly Alumni Council meetings in Cambridge. Faithful attendants include Al Burke, Jim Gibson, John Nalle, and Perk Bugbee, as well as your secretary.—**Harold Bugbee**, Secretary, 7 Dartmouth Street, Winchester, Mass.

'21



Just two months to go to what we all expect will be the biggest, best and most enjoyable class gathering we have ever had, our 40th Reunion, starting on Friday, June 9, and extending through Sunday, June 11, at the Mayflower Hotel on historic Manomet Point, Plymouth, Mass. This whopping event officially includes recognition of the ladies for the first time at our five-year reunions, in accordance with your vote last year. The returns to date indicate that we will have a large group of wives and daughters to add charm to the occasion. As if this weren't enough attraction to guarantee your attendance, the extra added feature is the M.I.T. Centennial Alumni Day on campus at the Institute on Monday, June 12. We all plan to attend this unusual observance. Transportation to Cambridge and accommodations there have been arranged by **Mel Jenney's** 40th Reunion Committee for your convenience. By this time you have received another mailed communication from the Reunion Committee and we hope you have already returned the application form, listing the reservations you want in both Plymouth and Boston. You now have details of the superb location in which to relax and vacation as you renew the fast friendships of past years. You have also noted the picturesque setting and the unusually extensive and attractive facilities for golf, swimming, fishing and the usual reunion activities. The location also offers an excellent harbor to which it is expected that some of our hardy sailors will steer their own boats. In addition, you have details on how to get there by road, the program to expect and other general information. It is urgently requested that you send in the application form at once. Later mailings will go only to those who register now. To register for Alumni Day, return to the Alumni Association at Cambridge the advance card which is included with your annual ballot for officers of the Association. Then make your application for Alumni Day tickets direct to Cambridge on the form which will be mailed to you. Write to Mel Jenney at the address at the end of this column for any other reunion assistance you may need.

In addition to the list of names published last month, the following have signified their intention to attend the reunion and have sent in the preliminary ap-

plication: Rich Clark, Bill Emery, Ed Farrand, Ben Fisher, Frank Flaherty, Jack Giles, Harry Goodman, Bog Haskell, Dug Jackson, Leon Lloyd, Howard MacMillin, Arthur Newton, Phil Payson, Elsie Pelkus, Dick Windisch and Miles Zoller. . . . Added to the previous list of those planning to attend the Centennial exercises at the Institute this month are: Rev. Everett Harman, Dug Jackson, Bob Haskell and Leo Pelkus. Members of the class will be seated together at the dinner on April 8. No official functions of the Class of 1921 have been planned for this month's Centennial observance. Arrangements for attendance can be made through the Centennial office, Room 7-103, M.I.T., Cambridge.

Rev. Father **Everett R. Harman** writes from Cedar City, Utah, where he is Pastor of Christ the King Church, that he will be in Buffalo early in April and is planning to attend the April 8 dinner in Cambridge before his scheduled trip to Europe. . . . **Bob Haskell's** son, Donald, will be graduated from Needham High School on June 12 but Bob and Doris will stay in Plymouth until we take off for Cambridge and they hope to attend most of Alumni Day. . . . You will have noted that, from the lists published last month and above, there will be present in June a goodly number of classmates whom we haven't seen for much too long a time, as well as many who have rarely missed a class event. Hope you'll be there, too, regardless of whether it's a "first" or the latest of the many you have attended.

Bob Waterman receives congratulations on his recent elevation from vice-president for research and development to senior vice-president of the Schering Corporation, pharmaceutical manufacturers of Bloomfield, N. J. . . . In addition to his numerous other activities, **Gus Kinzel** has been elected to the Board of Trustees of American Optical Company, Southbridge, Mass. . . . Dr. **Flemmon P. Hall**, formerly director of research of the Electronics Division, Speer Carbon Company, Syracuse, N. Y., says he is now engaged in similar activities for the Onondaga Pottery Company, also of Syracuse. . . . **Ed Noyes** and **Joe Kaufman** write that they both now live in Florida. Ed has moved from Macungie, Pa., to 1410 S.E. 7th Avenue, Pompano Beach. Joe has foregone the Boston climate and can be reached at 923 Essex Road in Daytona Beach. . . . **Bob Barker** confirms his home address of long standing, RD No. 5, Lockport, N. Y. . . . **Frank Blewer's** business address is 80 Pine Street, New York 5, N. Y.

Dick Windisch gives his home address as 49 Butler Road, Scarsdale, N. Y. He has retired as a partner of W. E. Burnet and Company of New York City, with whom he has been associated as a chemical consultant since 1921. He continues as president of the Conrad Windisch Company, secretary of H. S. McColl Company and as a director of International Flavors and Fragrances, Inc. He is a trustee of the Lucius and Eva Eastman Fund and of the Hitchcock Presbyterian Church. His memberships include the Union League Club, Scarsdale Golf

Club, Shenrock Shore Club, Queens City Club and the American Chemical Society. He and Margaret have three sons. . . . **Decker G. McAllister** heads the Pacific Scientific Company, 760 Harrison Street, San Francisco 7, Calif. . . . **Roy D. Snyder** is the owner and manager of Snyder's Dairy, 7th and Iron Streets, Bloomsburg, Pa. A director of the Farmers National Bank and a 33rd Degree Mason in the Scottish Rite, he has been a director of the local school system for 12 years, its president for two terms and its treasurer for one term. He and Ida have two married sons, a married daughter and five grandchildren. Richard was graduated from Penn State, Roy, Jr., from the Naval Academy and Nancy from Wellesley. . . . **Bradley P. Williams** gives his home address as 2222 Simpson Street, Evanston, Ill. . . . **Russell B. Tewksbury** is with the Fruit Dispatch Company, United Fruit Terminal, Weehawken, N. J.

Joe Wenick, for 10 years the capable treasurer of the M.I.T. Club of Northern New Jersey, has been recognized in being selected by the Alumni Association to be a candidate on this year's ballot for membership on the National Nominating Committee. Joe is a charter member of the club and also serves on its Board of Governors. He is a member of the M.I.T. Educational Council, the Special Gifts Regional Solicitation of the Second Century Fund, and he was a co-captain in regional solicitation for the Mid-Century Fund. When not occupied in one of these activities, he serves as Chief Manufacturing Engineer of Lightolier, Inc., New York, N. Y. Joe and Dorothy have two sons. Richard is an architectural graduate of the University of Cincinnati and Martin is a student at Brown. . . . Further notes on the elections of **Jack Healy** of Monsanto to the presidency of the American Institute of Chemical Engineers: Jack has been active in the A.I.Ch.E. for many years, most recently as vice-president and previously as a director for two terms. He has served as chairman of the Boston Section and he represented the society on the Engineering Manpower Commission. Jack has indicated that he will be with us in June. . . . Did you see the human interest story, datelined Washington, D. C., and sent out on UPI wires in late January, about the trials and tribulations which beset Mrs. Ann C. Whitman in winding up the affairs of the Eisenhower administration? In case you didn't know, Mrs. Whitman had been President Eisenhower's private secretary throughout his stay in the White House. She is the wife of **Edmund S. Whitman**, advertising and public relations manager of the United Fruit Company, with headquarters in Boston. Ed has achieved fame as one of the notable writers of the Class of 1921.

ACTION! Get that final registration in the mail at once if you haven't already sent it in. Phone a 1921 neighbor, fraternity brother, roommate or course-mate and ask him to make up a foursome with you and your wife. Bring along a son or daughter or other guest of the family. They will all be welcome and they'll all have a good time. But act now

to ensure that you'll be there to enjoy a major milestone in our class alumni history and another major milestone in Technology's illustrious record. If you need help in contacting others or in connecting with the April or June meetings, write to any of us listed below or to the Alumni Association at the Institute. But act now!—**Carole A. Clarke**, Class Secretary, International Standard Electric Corporation, Route 17 and Garden State Parkway, Paramus, N. J.; **Edwin T. Steffian**, Assistant Class Secretary, Larsen, Steffian, Bradley and Hibbard, 711 Boylston Street, Boston 16, Mass.; **Melvin R. Jenney**, Fortieth Reunion Chairman, Kenway, Jenney and Hildreth, 24 School Street, Boston 8, Mass.

'22

Sunny old Buffalo has come through the winter again without much inconvenience to its citizens or visitors. However, the changes from our lazy shiftless habits formed in Montego Bay are less than exhilarating. . . . George Dandrow has written of the early retirement of **William J. Edmonds** from Standard Oil Company (N.J.). Bill is now a director of Fund Research and Management, and works with Chace, Whiteside & Winslow, 67 Wall Street as vice-president and director. . . . **C. Yardley Chittick** has formed a new firm with Robert B. Russell and Charles E. Pfund to continue the practice of Patent Law under the name of Russell, Chittick & Pfund, 160 State Street, Boston 9, Mass. Yard will also continue his sailing activities and give generously of his time to SCF and the Class of '22. . . . **Webster K. Ramsey** who designed and supervised construction of U.S. Envelope Company plants from coast to coast has retired as of January 31. He directed modernization of old plants also, and the installation of power plant equipment. He says, regarding his activities after retirement: "Well, there are boats, and there is water, and I love both of them. Then too, I like gardening. I'll keep busy." . . . **Frank Westcott** of North Attleboro is pictured with others under the heading of Tournament Tension at the New England Open Individual Bridge Tournament. Frank is captain of the U.S. Bridge team that will represent this country in the international match in Argentina. Among the new addresses are included **Brian Mead**, Jamestown, N. Y., and **Fredrick Sweeney**, New Haven, Conn.—**Whitworth Ferguson**, Secretary, 333 Elicott Street, Buffalo, N. Y.; **C. George Dandrow**, Assistant Secretary, Johns-Manville Corporation, 22 East 40th Street, New York 16, N.Y.

'23

Last month's notes mentioned briefly that **Robert Burns** of 902 Greenway Drive, Coral Gables, 34, Fla., was our No. 2 world traveler. Since then the following note that he sent to Bondy gives

a little more detail. "I flew out to East Pakistan last January, did some work on irrigation projects and came back via Ceylon, England and Ireland last August with stopovers in each place. Now we are settled in Coral Gables near Miami and expect to stay here for a while. We almost went to Ecuador or Peru last September. We are both well after a hectic year." . . . Bondy has also provided the following news about **Harald Bjerke**: "Another member of the class from whom I had good news at Christmas was Harald Bjerke of Oslo. He said that he and Lena had just returned from a two months' stay in Southern Spain. The Bjerke's and their three children attended the 25th Class Reunion, and Harald notes that they are looking forward to 1963, when they hope to be able to come to the 40th Reunion. He also reports that his oldest boy, Harald Christian, is married and living in Pittsburgh. The daughter, Dikken, he said, has had another baby, which adds to the number of grandchildren. The younger son, Fredrik, has two boys and has just moved into a new house."

The Newark Evening News of January 9, 1961 had an interesting article, complete with a fine picture, on **C. Van (Shorty) Chamberlin**, the only mayor that our class can boast of; at least, the only one I know of. In addition to handling his own construction business, Shorty was recently elected Mayor of Cranford, N.J. That town currently has several building programs under consideration and Shorty will be right in his element. We all wish you success Mayor Shorty Chamberlin. . . . **Hugh S. Ferguson**, president of National Research Corporation in Cambridge has been named a member of the corporation of Boston's Museum of Science. Hugh lives in Belmont, was formerly president of Dewey and Almy Chemical Company, is a member of the M.I.T. Corporation and a past president of the M.I.T. Alumni Association. . . . A short note just received from **Jose Carlos Bertino** wishes all of our classmates best wishes for Christmas and the New Year from Buenos Aires, Argentina. Thank you, Jose, and the same to you from all of us even though it is a little late.

Jack Zimmerman, who is still with the Linde Division of Union Carbide in N.Y., has provided the following interesting data concerning Dr. **Paul Heymans**: "As you know, Dr. Paul Heymans received his doctorate at the Institute as a member of the Class of '23, and if I am not mistaken, he was actually here for the Alumni day last year. As I have done for a few years, I sent one of our family cards to the Heymans in Brussels and a few days ago I received a note back from Mrs. Heymans advising that Paul had died after an operation on November 19 last. He was one of the most outstanding men in our class even though he was not a 'regular' member of the undergraduate group. As you are probably aware, he came to the Institute from Cambridge University and established the first photoelasticity lab. This was the result of his earlier studies with Dr. Coker at Cambridge. Subsequently he re-

turned to Brussels where he gradually dropped all of his scientific interests because of the pressure of business and government. I am not certain concerning his business affiliations other than to know that he was a man of great importance in this connection in Brussels, and I also know that he was Minister of the Interior or whatever their equivalent title may be for this office. An interesting side light is the fact that at the time of our 35th Reunion at Pine Valley, **John J. Murphy** and I, with our wives, celebrated the 35th with Dr. Heymans and his wife in Brussels during the World's Fair. Incidentally, at the World's Fair, Paul was in complete charge of the Vatican building and its associated exhibitions at the Fair as the special envoy of the Pope. On my last visit to the Fair when in Brussels in 1958 I had an appointment with Paul for a personally conducted tour of the Vatican exhibition. I was received with much ceremony by the Secretariat only to be advised that a message had been left that Dr. Heymans was extremely sorry but he could not keep our appointment that afternoon as he had been sent for by the King. From this I would certainly conclude that he was in a very important advisory capacity to the Royal Family, and I am sure that in these troubled days in Brussels they will miss the kind of advice and counsel he might have been able to give the relatively young and inexperienced King."

Your secretary gave an illustrated lecture on January 25 before the Fitchburg Historical Society on Costa Rica and Guatemala. Central America is very colorful and this particular trip included the Grand Cayman Island, Costa Rica, the ruins of Antigua, Lake Atitlan, the Indian Market at Chichicastanango and the Mayan ruins at Tikal.

We regret to advise of the death of two classmates. **Arthur Westcott** was killed by a truck on July 8, 1960. He resided in Lake Worth, Fla. . . . **Robert W. Scott** died December 27, 1960 and had resided in Macy, Ind.

We wish to report the following address changes: **Harold B. Gray**, 182 North Shore Drive, Syracuse, Ind.; **Parker B. Holden**, Osterville, Mass.; **Miss Myrna S. Howe**, Concord National Bank, Concord, N.H.; **Louis A. Metz**, 157 Robsart Place, Kenilworth, Ill.; **J. Lindsay Muir**, 215 Hillside Dr., Kensington, Conn.—**Herbert L. Hayden**, Secretary, E. I. du Pont de Nemours & Co., Leominster, Mass.; **Albert S. Redway**, Assistant Secretary, 47 Deepwood Drive, Hamden 17, Conn.

'24

Well, the Lehrers are off. On January 25 they boarded a jet in Boston for San Francisco. On July 1 they're due back in Boston after an itinerary that takes them into an uncounted number of countries around the world. Periodically Ray has promised to send back progress reports, but the only one to arrive so far was from San Francisco. They did a little tripping around, Carmel, Monterrey, and a hop up to Portland, but the high spot seemed

to be discovery of the Kiltie Bar in the Mark Hopkins which has 165 different kinds of scotch. . . . Our professional 'round-the-worlder has just completed his 18th circuit. Barnacle Bill **Henry Simonds** brought his ship into Portsmouth late in January, bought a car, and headed across country for California and home. When he talked with your secretary he was mainly concerned about getting a car sturdy enough to transport all the loot he'd picked up in transit. . . . And still another on his way is **Carroll Dunn**. We had no advance billing on this, but a card arrived in February saying only "Nice trip so far. Land in Egypt tomorrow. Best regard." From the fact the card had a sticker saying "Kungsholm World Cruise" with a black line across a map of the world, we can only assume that the Duns are doing it too, and in a more leisurely fashion than either the Lehrers or Hank Simonds.

Now, to business. A very formal epistle almost like a wedding invitation announced that **Hartselle D. Kinsey** had been elected a vice-president of Union Carbide Corporation. "He will be concerned primarily with the planning, organization, and evaluation of the various technical programs of the Corporation." Sox has been with Union Carbide since 1924, in recent years as president of its Olefins division. . . . Professor **Ernst E. Guillemin** has been on the Institute's Electrical Engineering faculty since he came as an assistant in 1922. He has had a great many honors, the latest, 1961 Medal of Honor of the Institute of Radio Engineers. Last year he was appointed Webster Professor of Electrical Engineering, a distinction usually given to distinguished men from outside M.I.T. Now comes the announcement that Ernie is leaving the academic world to become vice-president and director of research of Burnell & Co., Inc. This is a firm in Pelham Manor, N. Y., and according to the release, it is a major independent producer of electronic filter networks. . . . The only other item of business that has come to hand is a picture of the fall luncheon of the Drug, Chemical and Allied Trades Association showing, on the right, Luncheon Chairman **Griffin Crafts**. Chairman Crafts looked his usual gracious and charming self. He certainly made a sparkling introduction, but the report of the meeting lacked any reference to it.

We told you that the **Ambachs** went to Europe last summer, but we were a bit late catching up on the details. They went to Dusseldorf to visit their son Dwight and his family. Dwight is in the consulate there. They saw quite a bit of the countryside and Russ got into East Berlin. Can't tell you how long they were there, because the letter says they left Boston on July 16 and Russ left Germany to return home on July 13. We know that marvelous things happen in this jet age, but the puzzler is that they went one way on the Statendam. . . . We heard from **Paul Joseph Cardinal** (may his tribe increase!). And it is, at an accelerating tempo. Paul Joseph, 3rd, was born in December. That makes nine grandchildren so far, but since the youngest of the Cardinal's eight children is only a

sophomore in high school, this is just the beginning. . . . **Emilio del Prado** still has a good lead in the class progeny race, but Cardinal is pulling up fast.

Maybe it has something to do with the fact that we were roommates in prep school, or maybe it's just coincidence. In any event, **Jack Nevin** and your secretary each named a son David, and each of the Davids named his first-born David Marshall. Jack, by the way, is boasting of his athletic prowess after winning a tennis tournament in Mexico City last summer. Trouble is, it was billed as the "Super-Veterans' Tournament," and it's just possible his competition was all on crutches. There was no definition of what made a veteran "super." . . . Architectural students assert their individuality in many ways, just as they did in our day. They seem to have the most outrageous beards, or the most peculiar clothes or bring their dogs to class. One we've noticed with an Alaskan husky, but only now have we discovered that he is **Frank Warren's** son, Bill. Frank informs us that Bill also has a wife and daughter, but so far we haven't seen them coming to class. As for Frank, he is still with Merck in New Jersey selling their agricultural products, "a slight change from a mining major." . . . So much for now. Don't miss next month's column. We'll follow the Lehrers into the Gold Pavilion of Kyoto, the Fujiya Flower Palace, and undoubtedly some of the better bars. Be with us then.—**Henry B. Kane**, Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

During the past month, members of the Class of 1925 have made the newspapers in various parts of the country. . . . The February 1961 issue of Fortune Magazine has a cover story on "M.I.T., the Greatest School of its Kind," and the appearance of this article has been of great interest to all of us at M.I.T. In this same issue, however, and following immediately after the M.I.T. article is one which I am sure all members of the Class of 1925 will find of considerable interest since it gives a real fine write-up on **Maxey Jarman**. . . . The Navy Research Reviews of December 1960 indicates that **Thomas J. Killian** has been selected from the ranks of the Naval Reserve for promotion to the grade of Rear Admiral in the Naval Reserve. Our congratulations to Tom who has planned to be with us at our last two reunions but Navy duties interfered in each case. . . . The Boston Traveler on January 17, 1961 indicated that **Ralph Gow** who for several years has been executive vice-president of the Norton Company in Worcester has been made president of the company, a real responsibility when you consider that the Norton Company operates 25 plants in the United States, Canada and overseas.

All of you I am sure are pleased to hear about your classmates, but will be indeed saddened to learn that **Harry L. Stiles** died at his home in Cedar Grove, N.J., on December 30, 1960. Harry had

been ill for some time and had retired about a year ago because of a heart ailment. He developed the fully automatic glass percolator while employed at the Bridgeport Plant of the General Electric Company prior to World War II. Since 1952, he has lived in Cedar Grove, although he has spent a great deal of time at the Silex Company plants in Hartford, Philadelphia and Chicago. Over the years, since graduation, he had worked for the Hotpoint Company in Chicago, going with General Electric as a commercial engineer when Hotpoint was absorbed by that corporation. During World War II, he left General Electric to take charge of the appliance section of the consumer durable goods division of the War Production Board. Following the war, he was with the Chicago Electric Manufacturing Company and continued there as vice-president in charge of Research and Development when Silex took over the company about five years ago. Harry is survived by his wife and a brother.

Arnold Bailey who for the past several years has been with M.I.T.'s Lincoln Laboratory has recently moved over to the Mitre Corporation, a non-profit organization which took over certain of the Lincoln Laboratory's responsibilities about two and one-half years ago. . . . During the past month, **Charles Cooper** on one of his visits to the Institute dropped in for a short period. . . . And **Frank Mulcahy** who is in the Boston area most of the time was able to pay me a short visit. . . . A note from **Weih Weihmiller** states that for the calendar year 1961 he has been elected a vice-president of the American Astronautical Society and re-appointed chairman of its National Committee (government and industry liaison for this national society). "Weih" is on the scientific research staff of the Republic Aviation Corporation.—**F. L. Foster**, Secretary, Room 5-105, M.I.T., Cambridge.

'26



Here I am once again with my class notes folder in my lap on an airplane, this time just a flight from Boston to New York. . . . A few months ago I mentioned that **Howard Humphrey** had been making visits to Boston's famed Children's Hospital with his 13-year-old son Bobby. I did not mention that on one of these visits it became necessary to amputate a leg. Howard reports that after the amputation Bobby's recovery "was phenomenal and he resumed a normal mode of life with the zest of his contemporaries." However, a recent note from Howard advises that in November they returned to Boston and Bobby died a few days after arrival, of cancer. For the class, your secretary extends heartfelt sympathy to Howard and his wife. We can only pray that someday science, perhaps some of it emanating from M.I.T., will conquer this ruthless killer.

If there appears to be a needle in what follows, please understand that it is intentional. This month I have received notes with clippings attached from mem-

bers of two other classes but none from any member of the Class of '26! The first note comes from Herb Hayden, '23, Manager of the Du Pont plant at Leominster, Mass. The note is attached to a clipping about **Arthur Brockelman** and says, "I believe Arthur was in your class." Not only was Arthur in my class but we did our thesis together. I wrote the thesis and did the work and Arthur got a blonde to type it for us! He learned how to become an executive real fast. Here's the clipping: "Lunenburg, Mass., January 18—Arthur J. Brockelman, Sr., of 83 Oak Avenue, today announced he would be a candidate for election to the board of assessors in the coming town elections. A resident of this town for 16 years, he is chairman of the Cemetery Commission, being elected in March 1958, and since August of that year has been chairman. His term expires in March. Vice-president of the Lunenburg Credit Union, he is a graduate of Massachusetts Institute of Technology with a bachelor of science degree in engineering administration. He has had 21 years' experience as president of Brockelman Brothers, Inc., operators of supermarkets in Central New England. Mr. Brockelman is the father of three sons, all of whom are resident voters here." By the way Arthur, do you remember the name of "the blonde?" I could only afford to contribute a cheap box of chocolates 'way back then and I think we have a long overdue debt, don't you? . . . The other clipping was sent to us by C. A. Clarke, Secretary, Class of 1921, and tells of a remarkable achievement of a classmate who has been too modest to tell us himself. We have all known that **Barney Gruzen** was an architect with offices near Central Park in New York but until this clipping arrived we did not know that he was real "big time." This one achievement is so important that I shall include practically all of the clipping which reads: "United Nations, N.Y.

—A structure with unique design by a New Jersey architect, the only U. S. Embassy building in the U. S., will be dedicated tomorrow afternoon at United Nations Plaza and 45th Street, opposite the United Nations Headquarters. The structure, designed by B. Sumner Gruzen of 44 Oakland Road, Maplewood, will be the new headquarters for the exclusive use of the U. S. mission, or embassy, to the U.N. The purpose of the new, \$3,750,000 structure is to give the mission the security, privacy and efficiency of having its own exclusive quarters close to the U.N. itself. This is the first structure in New York to use pre-cast stones as a facade. The cast stones form hexagonal frames for the building's windows. These stone frames have 14-inch overhang to create at the same time a distinctive and a secure appearance. Also unique is the inclusion of all services, elevators, washrooms, air conditioning equipment, and the like, in a separate windowless service core adjacent to the office space. This arrangement permits of maximum flexibility, efficiency and security for the office space. In addition, there is a two-story auditorium wing, separated from the office structure by an enclosed courtyard. Gruzen is head of the archi-

tectural firm of Kelly and Gruzen, which has offices at 60 Park Place, Newark, and 10 Columbus Circle, New York. Kahn & Jacobs were associate architects. Gruzen also directed, among numerous projects, the replanning of the New Jersey state capitol grounds, Albert Einstein School of Medicine, New York School of Printing, and numerous school buildings in New Jersey and New York."

Here we are back at LaGuardia at 8:10 A.M. awaiting the takeoff of a Northeast Viscount to Boston. Yesterday when I got into a cab to go into the city I had not known of the auto ban in New York and was amazed at the way we sped into the city without the usual traffic. I was also amazed to see the mess in all the side streets caused by the heavy snows. Thousands of cars parked in the side streets were completely buried with only a window ventilator or a radio antenna showing. If a new predicted snow turning to rain materializes, each will be in the center of an ice cake. My cab dropped me at the Barbizon Plaza and as I entered I ran smack into **Bill Lowell**. It was almost lunch time so Bill came back while I registered and we had lunch together. I phoned **Barney Gruzen** to join us but unfortunately he was in Washington. Bill, as you may recall, is with Sylvania and he was in New York to represent his company at a meeting of the Illuminating Engineering Society. It being one of his assignments to represent his company at technical meetings, he also attends the International Meetings of the Standards Association (we told you four years ago about his trip to Russia to attend such a meeting). This year the meeting is in Switzerland in June so Bill will miss our 35th reunion. However, he expects to visit his daughter in Wales while on this trip. His son-in-law is J. Douglas Yerber, Class of '50, and recently was sent to Wales by the Aluminum Co. to spend some time with their affiliate company, Impelco. His own son is Harry N. Lowell, also an M.I.T. alumnus, Class of '51. He is with Dewey & Almy and lives not too many miles from Bill in Boxford, Mass. Total of Lowell grandchildren is five, four in Boxford, and a real young one (six mos.) in Wales. . . . Cheerio for now, and don't let our friends in the other classes send me all the clippings.—**George Warren Smith**, Secretary, E. I. du Pont de Nemours & Co., 140 Federal Street, Boston, Mass.

'27

Upon hearing from the Institute recently of a change of address for **Col. Lloyd R. MacAdam** from Igloo, S. D., to Portland, Maine, we wrote a note to him thinking that there might be involved something of interest to other members of the Class of '27. A prompt reply reveals the following: "There's nothing especially significant about my change of address to this small community on the Maine coast, Cumberland Foreside, just a few miles north of Portland. I'm simply now retired from the

Army, and we elected to give this familiar and charming area at least a trial. So far, in this early period of retirement, I must say that I do miss the former easy accessibility of flying facilities. My wife claims that I entered my Third Erector Set stage. The Second was something else again, when only two years ago I decided to take up flying seriously, and get a pilot rating. Now I'm an addict, and can't leave the stuff alone. I'm sorry to have missed the gatherings since the 20th. But Korea and other interruptions seemed to come up at the wrong times. It was good to hear from you."

Here is an interesting letter concerning **Glenn Jackson's** activities, recently directed to **Jim Lyles** by Azel W. Mack, Class of '15 Secretary: "I wonder whether you all in 1927 know what an All-American, Inter-State, energetic M.I.T. Club man you have in that irrepressible classmate of yours—the well-known Glenn Jackson? In 1948 he was vice-president, M.I.T. Club of Rhode Island; 1952 vice-president, M.I.T. Club of New Jersey; 1953-54 president, M.I.T. Club of New Jersey; and 1959-61, president, M.I.T. Club of New Hampshire. There's a hard working beaver for you. What a guy!"

A recent news clipping from the Brockton, Mass., "Enterprise & Times" advises that **Frank C. Staples**, a former Campello man who rose to be president of a national concern that does a greater than \$60 million-a-year business was re-elected to that office at the company's recent annual meeting in New York after a year of record sales and expansion and an increase in profits. There was a \$4 million increase in sales over the previous year. The company is the American Molasses Company in New York City. It is the largest company in the molasses business, with 16 subsidiaries and divisions in the United States and Canada, and offices and plants in 12 cities. Two more companies were acquired during the past year. Frank went to work for the American Molasses Company as an engineer in 1930, after three years with another corporation in York, Pa. He became plant manager in 1936; in 1943 he was elected vice-president in charge of all the company's plants, and in 1951 was elected a director of the company. He was elected president in 1956. Frank lives in Floral Park, L.I., N. Y.

A Springfield, Mass., newspaper announced that **Henry D. Johnston**, vice president since 1957 and a director since 1951, was elected president of the Strathmore Paper Company during the annual meeting of the board of directors in December. This is a 1000-employee firm with four mills, two in Woronoco and one each in West Springfield and Turners Falls. Henry has been with the nationally-known paper making company for 33 years, having joined the company following his graduation. In 1929 he was appointed assistant to the vice president in charge of production; later he became superintendent of finishing and shipping, and a few years later became manager of industrial relations. The Breakfast Club of the Greater Springfield Chamber of Commerce assembled in January and

among those signaled by the chief greeter for a salute from the Breakfasters was Henry D. Johnston, in recognition of his new position as president of the Strathmore Paper Co. He has been active in the United Fund, is a member of the official board of Trinity Methodist Church and of West Springfield Rotary Club. He is also a member of the Technical Association of the Pulp and Paper Industry, the Community Relations Committee of the American Pulp and Paper Association; is a director of the Employers Association of Western Massachusetts and a member of the American Guild of Organists. He makes his home at 171 Falmouth Road, West Springfield, Mass. —**J. S. Harris**, Secretary, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

Ralph Johe has received a most welcome letter from **Elliot Grover**. Elliot, many of you will recall, was the class swimming star and captain of the swimming team. His opening sentence to Ralph is a simple statement that we hope will reach and stir those of you who have been always intending to write: "I have neglected to publicize my own activities for a long time but now an occasion has arisen to encourage me to write to you and George Chatfield." Elliot goes on to give us his good news. First, Interscience Publishers, Inc., has just published a book, "Handbook of Textile Testing and Quality Control" authored by Elliot with D. S. Hamby. Recently, Elliot was appointed head of the Department of Textile Technology at the School of Textiles, Raleigh, N. C. This is a new department comprised of two former departments, Fiber and Yarn Technology and Fabric Development. All of the school's research activities, with the exception of chemistry, are now concentrated in the new department. Congratulations, Elliot, on both achievements, and our best wishes for your continuing success. . . . At its meeting in New York December 1, the New York Academy of Sciences awarded a number of Fellowships. The award in Nutritional Biochemistry was made to Dr. **Robert S. Harris** who, as many of you know, is Professor of Food Technology at the Institute. To you, too, Bob, our warmest congratulations.—**George I. Chatfield**, Secretary, 11 Winfield Avenue, Harrison, N. Y.; **Walter J. Smith**, Assistant Secretary, 15 Acorn Park, Cambridge, Mass.

'29

It's possible that you can still get a seat at the Class Dinner in connection with the Second Century activities on Saturday, April 8. Hope to see many of you there.

I have just finished reading a very interesting article in the Bell Laboratories Record by **Newt Bryant** entitled, "Direct-

ing Naval Weapons." Newt has been with Bell Laboratories since 1930. His early work was in research on voice-operated devices, including echo suppressors, companders, and radio-telephone switching terminals. During World War II, he designed radars for use on battleships, cruisers, and submarines. Later, he was responsible for development of weapon-direction equipment for modern cruisers and guided-missile destroyers. His article in the Record concerns this activity. At present he is supervisor of a group concerned with design of digital data-processing equipment for Nike-Zeus. . . . **Bill Baumrucker** has joined the graphic arts activity of Charles T. Main, Inc., professional engineers in Boston. As many of you will recall, Bill filled executive positions with the Washington (D.C.) Times Herald and the Boston Herald Traveler and most recently was vice-president and general manager of Photon, Incorporated.

Word from Charlotte, N. C., advises that **Bill Jones** has been appointed assistant Southern manager of Carbic-Hoescht Corporation of Charlotte. Bill has been with Carbic since 1947. . . . News from Holyoke is that **Dan O'Connell** was recently appointed Special Sheriff of Hampden County, Mass. This office is established by law and is a highly important one, since Dan takes over in case the High Sheriff becomes incapacitated. Dan is very active in his own community as well as heading the Daniel O'Connell's Sons, Inc., construction firm. —**Fisher Hills**, Assistant Secretary, 62 Whittemore Avenue, Cambridge 40, Mass.

'30

This month's notes are being written on the beach at Delray, Fla., where the Listers are enjoying a winter vacation, some two and one-half hours by jet from New York's icy environs. However, in the interests of accuracy, the foregoing somewhat lyrical statement should probably be qualified by conceding that at the time of writing the scrivener is encased in considerably more than a bathing suit. Those woolen mittens certainly make writing difficult. . . . This month we are again working on reports from the B's. From **Jack Bloom** comes the advice that, like **Bill Wye**, he is on the examining staff at the U.S. Patent Office. He is in examining division 62, wherein patent applications concerned with such apparently unrelated subjects as photographic apparatus, mechanical guns and projectors, toys, games and amusement devices are examined. The Patent Office classification system is one of life's little unfathomable mysteries. Jack's hobby is amateur radio and his call letters are W3AOF. . . . **Mannie Birnbaum**, his wife and three sons, ranging in age from 11 to 17, are living in Guelph, Ontario. He is vice-president and general manager of Hart Products Company of Canada, Ltd., manufacturers of surface active agents, detergents and sequestrants. He reports that Hart Products was recently bought

out by Lever Brothers, Ltd. Mannie is president of the Ontario Welfare Council.

Jim Bowen is in the industrial real estate business in Phoenix, Ariz. He has two daughters. Gabrielle, the older, is now at the College of Wooster in Ohio, and George Washington University in Washington, D.C., and Sandra Lee, is in high school in Denver. Jim is a director and past president of the Phoenix Real Estate Board. He was the first member of the Society of Industrial Realtors in central Arizona, and is still the most active member in that area. . . . **Mel Blackwood** and his family are living in Rowayton, Conn. His older daughter has applied for admission to Pembroke, where she hopes to start as a biology major next fall. Son Bill, 14, is in prep school at New Hampton, N.H., and nine-year-old daughter Patsy is in public school. After working for American Cyanimid for a number of years, Mel has shifted to the job of standards engineer for the Burndy Corporation of Norwalk, manufacturers of various types of solderless connectors for the electronics industry, largely for missile and aircraft end uses. His job is to write standards for the company's products and operations to meet military specifications.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N.Y.

'31



If you haven't already read the article in the February issue of *Fortune* entitled "M.I.T. and the New Breed of Hairy Ears," you should read it. **Gordon Brown's** career since '31 is pretty well covered there, and you'll find his picture on page 131. . . . A publicity release tells that **Carl D. Cordua** has been appointed manager of general engineering for Edwards Company. . . . And that is about all the news. . . . **Hal Gurney**, **Claude Machen**, **Bill Jacobs**, **Gordon Speedie**, **Chuck Norris**, **Russ Pierce**, and **Irving Finberg** are doing a fine job on the preparations for our 30th Reunion at the Wianno Club, Cape Cod, on June 9 to 12, and we are all looking forward to seeing you then. . . . The Army and Navy contingent of our class seems to continue on the move. **Col. Harold H. Carr's** new address is Lawtonwood, Seattle 99, Wash. . . . **Brig. General Bob Fleming** is now located at 6230 Waggoner Drive, Dallas 30, Texas, and Rear Admiral **Arnold E. True** has moved from La Honda, Calif., to 3446 Janice Way, Palo Alto, Calif. . . . **Don Weaver** is now located at 4 Washington Square Village, New York 12, N. Y.—**Edwin S. Worden**, Secretary, 6 Murvon Court, Westport, Conn.; **Gordon A. Speedie**, Assistant Secretary, 90 Fal-mouth Road, Arlington 74, Mass.

'34

Our class has set a lamentable record for modesty! I wrote personal letters pleading for news, yet most of the class of '34 didn't reply. That kind of modesty

is unfriendly. Are you shy of time or just plain shy? . . . Fortunately, General Aniline and Film Corp. let M.I.T. know about **Harold Harsh's** promotion. He is now general manager of the Ansco Division. Harold, after getting his master's degree in '34, joined Ansco as a chemist. He served successively as a department head in its paper plant, manager of the Chemical Development Laboratory, manager of Quality Control, production manager, and manager of Operations in 1956. Despite the company's photographic products we surmise Harold has no "snap" job, and must have "developed" well to become so well "fixed."

Again, you'd think when **Harold Thayer** wrote the class notes two months ago, he'd mention in passing that he had just become president of Mallinckrodt Chemical Works! He didn't. Modesty, modesty, all is modesty. . . . **Sam Groves** gets high praise for writing about himself and family. His son finishes Milton Academy this year and his daughter is at Masters School in Dobbs Ferry. His son has worked at a camp in past summers, enjoying and benefiting from it. Sam is president of United-Carr Fastener Corporation and works in Boston. He says he could go on for hours talking of his work. Here are some of the things he says: "United-Carr makes thousands of small parts of metal and plastic and combinations of the two. We serve practically every industry in the country and the total number of pieces shipped in any year runs into the billions. We have 15 plants in the United States and nine abroad and are constantly thinking of more. It is an interesting business because we are concerned with the problems of all businesses. There are constant new developments but very few of the individual products end up running into huge volume." . . . **Frank Feeley**, on prod-ding, told me he had a pleasant luncheon visit with **Sim Jester**, after meeting him on business. Sim is talkative and happy in his work as lubrication engineer with Gulf Oil. Frank also told me of his son, **Frank Feeley, 3rd**, who is a sophomore in Mamaroneck High School and continues his desire to specialize at Princeton in the physical sciences. The serious heart surgery young Frank underwent two years ago left his health in doubt for a whole year. Yet miraculously he is doing so well in school that he was advised he could get into any college. If M.I.T. sees this young man it will be for his doctorate work. The versatile lad likes dramatics because of the great change it affords. The Feeleys sail out of Larchmont on their 40-foot cutter, but on a two week vacation and social voyage with friends they seldom get much farther than Cape Cod.

As for immodest me, my Amering Corporation has entered the loose-leaf binder and sales aids field on a national scale under the name of Binderman Division. Besides seeking catalogue cover business of top industrial firms, Amering is still seeking and working on interesting items in the office and home fields. . . . **Tom La Cava** writes a happy letter from Concord, N.H., where he is chief engineer of the Water Pollution Commission.

He writes: "Just married off daughter number one and if things progress as indicated two more will follow shortly. My youngest of five children is now thirteen. Looks like they will all push through the University of New Hampshire for a starter." Tom expects to stay in New Hampshire at least for a while longer. It's a good place for meeting classmates, for he has seen the **Al D'Arcey's**, **Roger Coffey**, **Bill Dobbins**, **Angelo Iantosca** and **Al Hurst**. . . . From Seattle **Mal Stevens** received word from **Oscar M. Browne, Jr.**, Captain, USN (Ret.). He explained that he obtained his B.S. degree from the U.S. Naval Academy in 1930 and entered M.I.T. in 1932, obtaining his M.S. degree in 1935. He was considered for a time to be of the class of 1935. He is now back in the fold. He writes, "I retired from the Navy in 1958 with the rank of Captain. The 'professor' title, which the Alumni Association seems to prefer to my Naval title, stems from the fact that since my retirement I have been affiliated with the University of Washington as an acting assistant professor of Mechanical Engineering."—**J. P. Eder**, Secretary, 1 Lockwood Road, Riverside, Conn.; **G. K. Crosby**, Secretary, Longwood Road, Huntington, W. Va.; **H. E. Thayer**, Secretary, 415 West Jackson Road, Webster Groves 19, Mo.; **M. S. Stevens**, Secretary, Patent Section, Room 20B-131, M.I.T., Cambridge 39, Mass.

'35

For an entire month no additions have been made to the Class "Secretariat." Until Ed Edgar establishes more district secretaries in his region we stand at 29 District Secretaries, four Regional Secretaries and one Class Secretary. My heartfelt thanks go to all of you who are providing the interesting letters and news, and I am sure I speak for all our classmates (the reading public).

Ed Edgar writes from New York: "Following your distribution of the 153 three by five address cards of classmates in our Metropolitan New York area, I wrote each one setting up the channels for news flow. So far we have one District Secretary in our area, **Hal Everett**, who has accepted responsibility for Long Island and the 22 members of our class who live out there. We shall have further announcements in the coming months of other district secretaries. I saw a number of our classmates at the annual M.I.T. Club of New York dinner last December at which Jim Killian spoke. Present were **Ollie Hoag** and wife, **Bernie Nelson**, **Lars Ekwurzel** and wife and **Marjorie** and I. I can report that **Bernie Nelson** has moved from Long Island to 140 West Street in the City and is now assistant vice-president of the N. Y. Telephone Co. He assists the vice-president, Finance and Comptroller. Also, Colonel **Bill Powers** who was recently in charge of the Philadelphia Engineer District is now executive director for Construction of Lincoln Center for the Performing Arts. He accepted the position this past fall. I also would like to report

that Lincoln Paige, E. G. Reilly and Richard M. Whitmore have just joined the M.I.T. Club of New York. This raises our class membership in the Club to approximately 49."

From across the country **Gerry Rich** sends in the West Coast Notes as follows: "**John Mooring**, District Secretary in Bellevue, Wash., called recently via his favorite instrument, the telephone, and divulged some news about **Otto Zwanzig**. Otto has been working as general sales manager for nearly five years at BC Electric in Vancouver, British Columbia. He planned to move to the vicinity of Washington, D. C., early in 1961 to take another job, but not before taking a boat trip to Alaska, because, as he says, 'he may not have another opportunity to see that part of the U.S.' Otto and his wife, Alice, have two children, Peter 16 and Lisa eight, both of whom are good students and are taking accelerated courses. Peter graduates this year from High School, and he is a member of the 'Roving Three,' the local version of the Kingston Trio. Since I remember that Otto used to manage the Musical Clubs at Tech, he may be collecting his 10 per cent from this operation."

Back in the East again. **Hal Bemis** sends news from several in the Philadelphia area. **Barney Freiberg** now lives at 60 West State Street, Doylestown, Pa., and writes: "Enjoyed your letter but I'm a bad prospect for news. I'm not even an engineer, but a retailer (Ann Stanley Store, Doylestown). Neither Mrs. Freiberg nor I do anything you list, just get the bite put on us by people who do. However, we are Republicans—the McKinley type, but not to the extent of \$100-a-plate dinners. But we were tolerant. We have Democrat customers and even employ one (Democrat, I mean). Would it help any to know that my sister plays golf for the country club team that won a Cincinnati city championship?"

... **Bill Brockett**, Cedarcroft, Kennett Square, Pa., writes: "We lived in Needham, Mass. from 1949 to 1958, while I sold for the Dyes and Chemical Division of Du Pont. During this time the family increased to six children. In 1958 we were transferred to the main office in Wilmington, Del., and after spending August 15 to October 3 in hotels and motels, we moved into a home in this development near Kennett Square. The customary pleasures of semi-country living (water supply, sewerage disposal, getting things to grow in the sand the builders left, etc.) have kept us well occupied. My job is market development and still with the Dyes and Chemicals Division. Most of my time is being spent on Organic Titanate products at present. This manages to keep me moving from airport to airport fairly rapidly. More on the family: 6 children, 2 boys #2 and #6 and 4 girls #1, 3, 4, 5 with ages 12-2; one Beagle, miscellaneous wild-life accumulated by small fry, and a wonderfully patient wife." ... **Bill Seary** lives at 20 Farm Road, Wayne, Pa., and gave some fast answers to Hal's questionnaire: "No more children since 1942, but two grandchildren since 1958, both too young for school." Bill has it made. He says his

wife "has solved all of the problems that beset normal human beings!" ... I don't think we should close out this paragraph without passing along to you Hal's priceless remark to **Jack Orchard** in congratulating him on his new offspring: "Don't feel badly, my youngest is four and the oldest ten. Sort of makes you feel like Ponce de Leon, until you get home from the office."

The Class Steering Committee met at the Faculty Club on January 24 and among other things set up a committee to arrange class tables for a dinner to follow the President's Reception on April 8. This is a very small part of the three day Centennial Celebration being held at M.I.T. April 7 to 9. The committee is headed by Art Marquardt and includes Fran Muldowney, Dave Cobb, Gerry Golden and Ham Dow. If you can arrange to be in Boston that day, let us know about it in advance. If it's a last minute decision, come anyway and we'll find a spot. ... Spot news picked up at the meeting: **Gerry Golden** became a father for the second time last June 21. It's a cute red head with blue eyes named Pamela. She joins brother Jonathan, now three and one-half years. ... On July 25, our former Class Secretary, **Fran Muldowney**, became a grandfather to Francis William Muldowney, 4th. Fran's father is living, making four generations. Congratulations to the Golden and Muldowneys. ... **Bob Forster** is now on jury duty, but has five sales managers keeping the wheels turning while he is tied up. ... **Dick Del'Etoile** proudly boasts of having two sons over six feet one inch in height. ... **Hugh Fenlon** wrote **Ed Loewenstein**: "My biggest achievement of the past year was the publication of my new book, 'Reinforced Concrete Column Tables, Ultimate Strength Design,' which made sufficient impression in its field to bring about its adoption by Dodge Books for promotion. It is being ordered from all over the world and is helping to 'push up' the height of concrete buildings." We can also hope it will "push up" his taxes, too!

The Journal of the Boston Society of Civil Engineers published a paper entitled "Sewage Oxidation Ponds in New Hampshire" by **Darrell Roof**. Darrell is a partner in Camp, Dresser & McKee of Boston. ... Dr. **T. J. Suen**, who received his master's degree with us, has just been appointed manager of the Plastics and Resins Research Unit of the American Cyanamid Company's Stamford Research Laboratories. He joined Cyanamid in 1945 after a short period with M.I.T. Radiation Laboratory. ... **David Terwilliger** has been appointed chief engineer of systems at the Norwood, Mass., Precision Products Department of Nortronics Division of Northrop Corporation. The announcement came from Northrop's executive offices in Beverly Hills, Calif., which I had occasion to visit last week. The reason for the opening sentence of these notes will become more apparent to you when I tell you my Northrop visit was preceded by a glorious, relaxed vacation week spent in Palm Springs with my wife. We "galleried" the \$100,000 Desert Classic one day and played some

golf ourselves in between sun-worshipping sessions by a pool. We left the day Eisenhower arrived, which is really of no significance, either to him (I'm sure) or to you. But I did try one of his favorite courses, La Quinta, getting warmed up for our own Class Tournament. This is the last call for it, so write quickly for entrance blank to either **Art Marquardt** or me.

You, too, can assist in making these notes interesting reading. Telephone, write or call on your nearest secretary now, before you forget. **Edward C. Edgar**, Kerry Lane, Chappaqua, N. Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Elmer D. Szantay**, 6130 N. Kilbourn Avenue, Chicago 16, Ill.; and **Gerald C. Rich**, 673 Rosita Avenue, Los Altos, Calif., Regional Secretaries.—**Allan Q. Mowatt**, Class Secretary, 11 Castle Road, Lexington 73, Mass.

'36



Plans are now well along for our 25th Reunion. The dates: Friday, June 9 through Sunday, June 11, and Alumni Day, Monday, June 12. The Place: Baker House, on the M.I.T. Campus. Separate accommodations will be available for your children. A supervised program for children's activities is being planned. Please mail any questionnaires, applications, class dues, etc., to **A. E. Hittl**, Linde Company Division, Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y. All indications point to its being a huge success. Returns are running well ahead of expectations, so don't miss this big one. ... Also, don't forget the Alumni Fund and the 25-year gift. We are just short of the \$100,000. mark so let's push it over.

Now for some other news. **John Easton** has been elected an assistant vice-president of the Singer Manufacturing Company. He will be responsible for manufacturing services including cost improvement, industrial engineering, quality control, manufacturing engineering and production control. Jack joined the Singer organization in 1945 as an industrial engineer. After serving in various supervisory positions in the United States, Canada, and Scotland, he joined the staff of the vice-president in charge of manufacturing, and in 1958 was appointed chief industrial engineer. Jack lives at 16 Edgemont Avenue, Summit, N.J. ... Dr. **F. Phillips Pike** has been appointed program director for Engineering Sciences in the Mathematical, Physical and Engineering Sciences Division of the National Science Foundation. Since February 1960, he has been assistant program director for Engineering Services. Before joining the Foundation, Dr. Pike served as a professor of Chemical Engineering at North Carolina State College, where he taught from 1946 to 1960. His educational experience also includes teaching chemical engineering at the University of Minnesota from 1940 to 1946. He was engaged in research as a chemical engineer from 1936 to 1940 for the Standard Oil Company of Indiana. As a consultant

on chemical engineering aspects of processing problems, he advised the U.S. Bureau of Mines in Raleigh, N.C., during 1956-58. Engaged as a research participant, he conducted research in chemical engineering at Oak Ridge National Laboratory, Oak Ridge, Tenn., for six months in 1950. Dr. Pike is the author of several technical articles. His study of "The Vapor Pressure and Boiling Point of Titanium Tetrachloride" appeared in the *Journal of Chemical Engineering Data*.

A sad note in our news is that **Otto Hardacre** passed away October 24, 1959.

... **Hamilton Migel** has been named vice-president for planning of new products and product development of Magnaflux Corporation, a wholly-owned subsidiary of General Mills, Inc., in Chicago.

Dick Denton passes along the news that **Ben Dayton** is the new president of the American Vacuum Society. The following are some excerpts from Dick's nice long letter: "Ben has been in this field almost since graduation. He went to work for Eastman Kodak who placed him in Distillation Products, Inc., in Rochester. This company has been owned by Kodak, General Mills, Consolidated Engineering Corporation, and Bell and Howell. In addition to these major moves, the company name has changed slightly a couple of times so that Ben has actually worked for six or eight different companies while being constantly with the same outfit and always in Rochester! The present name is Consolidated Vacuum Corporation. He has a nice wife whom I have met often and two boys whom I have not met. He has been very active in high vacuum circles ever since I ventured into this industry during the war and has served the A.V.S. in many capacities in the last few years. He has done considerable work on establishing and standardizing suitable methods of testing oil diffusion pumps and is the instigator of a booklet which defines all of the multitudinous terms used by the modern high vacuum technologist. He headed the committee which worked several years both in this country and abroad to bring some semblance of standardization to a technology which had grown and still is growing 'like Topsy.' He is the author of a number of other technical papers.

"A word about the American Vacuum Society. We started in 1953 with an organizational meeting and had our first symposium in 1954. The attendance has grown so that now nearly 1000 attend the annual meetings and perhaps twice that number are expected at the international meeting next October in Washington. The society has nearly 1000 members and is expected to grow further, as the importance of high vacuum in physics and electronics continues to increase and the requirements for space simulation and testing are producing fantastic demands for more and more of less and less.

"I, myself, have been active in the high vacuum field, but only since 1943 when I became involved in vacuum coatings for optics for military instruments. I have been on the board of directors of the A.V.S. for the past two years and was very happy to be sitting at the head table when Ben took over as president.

Our speaker was Dr. Ira H. Abbott, '29, Assistant Director of the NASA. He is also an M.I.T. graduate, although not fortunate enough to have been a member of the Class of 1936. I believe that another member of our class, **Arthur Baker**, who has his own outfit up in Maine makes high vacuum ovens and is thus also in the field. Whether this makes '36 the class that knows the most about nothing, I am not sure, but it should set a record of some sort. As I think you know, I started a small business in 1946 which first engaged in the vacuum coating of optics and then branched out into the manufacture of high vacuum equipment. This company was called 'Optical Film Engineering' and was sold to the New York Air Brake Company in 1956. I managed the operation for four years during which time we tripled our gross and outgrew our space, whereupon the division was moved to Boston and consolidated with the Kinney Vacuum Pump Division. This happened during the first half of 1960 and I decided to stay in New Jersey and thus joined the Elion Instrument Company of Bristol, Pa., last August as vice-president. Elion makes very fancy equipment such as electron spin resonance analyzers, micro-probe analyzers and will soon add various high vacuum and electron beam items to this line as my division gets underway. From the personal standpoint, I am happily settled here in Haddonfield. My oldest girl is a junior at Syracuse and my younger daughter is a freshman at Middlebury where one of her upper class advisors is **Fletcher Thornton's** oldest daughter Ann! My youngest, a boy, is a sophomore in high school and may perhaps become fodder for the Institute if I can still afford the tuition three years from now. My wife and I are in good health and will look forward to renewing our acquaintance with those members of the class who are not in the high vacuum business (whom we see more often) next June."

A few more letters like this would sure live up these notes. Thanks very much, Dick. . . . See you at the 25th.—**Jim Leary**, Secretary, Indian Harbor, Greenwich, Conn.

'37

As April Class Notes go to press in mid-February, your Class President, **Phil Peters**, is subbing for **Bob Thorson** in preparing these notes. The newsworthy reason is that Bob Thorson has just gone to the altar for the second time and presently is honeymooning at Acapulco, Mexico, with his new bride, Rose. A postcard from the honeymoon spot shows that Bob is well embarked on the happiness he so richly deserves.

In traveling around the country as chairman of the Area Organization for the Second Century Fund, I've crossed paths with many of our classmates. **Gil Mott**, who is now vice-president of Bridgeport Brass Company, is serving as a regional chairman for the Second Century Fund drive and doing a swell job. He's quite the distinguished looking senior execu-

tive. . . . Many of you will remember **Wally Rostan** who ended up in the Class of '37, although he started out with 1935. He's now a busy executive with Jones & Lamson in Springfield, Vt., and doing a good job for M.I.T. in the Vermont area. . . . **Al Blank**, who is in charge of product research for Chase Brass, reports that he is busier than ever. Even so, he's taking time out to help in the Second Century Fund in the Waterbury area. . . . I attended a meeting of the M.I.T. Club of Oklahoma City recently in company with President Stratton. One of the attendees was **Alanson W. Chandler** of our class who is now president of his own company, The Chandler Engineering Co. He manufactures natural gas metering devices and seems to be really happy and excited with his own business and its prospects. . . . Another Class of '37 member who's working hard for the Second Century Fund is **Bill Bergen**, President of the Glenn Martin Company. Bill is our area chairman in the Baltimore area and doing a great job, both for Martin and for M.I.T. . . . Recently when I was in Greensboro, N.C., talking with an M.I.T. group for the Second Century Fund, one of those present was **Irv Tourtellot** who is in charge of the Charles T. Main office down in Charlotte. Irv is taking an active interest in the M.I.T. Club down there and promised to do his best to be back for our 25th reunion. . . . Out in Cleveland, I continue to cross paths with **Art Zimmerman**, who is sales vice-president of Steel Improvement & Forge Company. Art is doing a bang-up job helping the Cleveland Area Chairman make the Second Century Fund a success. He's also a trustee of his church and gave a sermon on Laymen's Sunday.

My own life has been very full these past 10 months trying to keep up with my job as vice-president of John Hancock Mutual Life Insurance Company and also to work on M.I.T.'s Second Century Fund. It's been an exciting time, however, and there is a real thrill in seeing the Second Century Fund grow as it is toward its over-all \$66,000,000 objective. It's also thrilling to see first hand the really important part M.I.T. is playing in the scientific progress of America and the free world. . . . **Windy Johns** is another classmate with whom I've had periodic contact. Windy is in the process of preparing a release to our class about 25th reunion plans, and I hope that you may have received it by the time this article appears in print. He is extremely busy in his management of his own firm, Johns Manufacturing Company. He and Alice look as young as ever, and good technical ideas continue to flow at a fast rate whenever one has a chance to talk with Windy.—**Philip H. Peters**, President, 14 Cushing Road, Wellesley Hills, Mass.; **Robert H. Thorson**, Secretary, 506 Riverside Avenue, Medford 55, Mass.

'38

I am indebted to **Joe D'Angelo** for the following letter from which I quote: "In the last issue of *The Technology Review*,

I saw the brief reference to the unfortunate death of our classmate and my very good friend, **John Rote**. In the event his friends want to express their sympathies to his wife and family, they can contact his wife at the following address: Mrs. J. G. Rote, Jr., 38 Adella Ave., W. Newton, Mass. For your further information, John was originally associated with my present company, Reichhold Chemicals, Inc., after graduating from M.I.T. He served in the Army Air Force for three years as pilot and then operations officers of the 20th Air Force in Saipan. He was employed by Standard Packaging Corporation since 1949, and was appointed technical director of all divisions in 1951, a position he occupied until his death."

A prominent article in the Providence, R.I., Evening Bulletin describes the work of **Gretchen Nelson** in providing the interior design and color of the newly completed post office building there. She has applied similar talent to many other commercial buildings and churches in Rhode Island, as well as in other states and in Puerto Rico. . . . Brig. Gen. **Austin Betts**, Army Corps of Engineers, has been appointed director of the AEC's Division of Military Application. For the year previous to this appointment he was director of the Advanced Research Project Agency of the Department of Defense. —**David E. Acker**, Secretary, Arthur D. Little, Inc., 1424 Fourth St., Santa Monica, Calif.

'39

Harold R. Seykota, XV, your Class Secretary for many years, resigned from that assignment two years ago at the time he accepted a position overseas. Here's news from a recent letter, to bring you up to date on Hal's activities: He has been in Korea, handling start-up and initial operations on an ICA chemical plant there, a 250-ton per day synthetic urea fertilizer factory. Hal went over to Korea in September of '59 as a representative of Vulcan-Cincinnati, Inc., to train about 115 Koreans and 20 or so Americans in plant operations. Hal wrote that he had had plenty of headaches with the problems of working with a 40 million dollar project involving several nations, several races, and several corporations. He said that there are many stories that could be told about the new plant, and that unfortunately some of these could sequel parts of the "Ugly American." However, blue sky has been showing through the clouds recently, and Hal expects to return to the United States in April. He sent a fine long letter. If any of you would care to read it, I'll send it to you on request. The only charge: Enclose a paragraph about your own activities, for a future issue of these notes.

Robert E. Touzalin, II, wrote two fine letters this month. Here are extracts: "I'm assistant chief engineer for Interlake Iron Corporation, Cleveland 14, Ohio. We produce various grades of pig iron, ingot mold iron, coke, and coal chemicals, as well as ferro-alloys such as

ferrosilicon, ferromanganese, and ferrochromium. We have plants at Toledo, Erie, Chicago, Duluth, Jackson (Ohio), and Beverly (Ohio). My job assignment is the coordination of all engineering activities of the firm. . . . An after-hours activity of considerable interest is being chairman of the Industrial Development Committee of our village of Aurora, Ohio. For about two years we've been working on problems of rezoning for industry, coordinating with a regional planning commission, and preparing a fine brochure." (Any aspiring plant manager desirous of locating a new or branch plant near Cleveland should get in touch with Bob. He'll be glad to give you the straight story on all factors of plant location within the area.) Bob also wrote that he and Aletta are enjoying a busy household of four active youngsters. Jane 11, sixth grade, likes horses, dogs and swimming. Rob 10, fourth grade, "wants to be a football player but he's built like the old man." Twins Ann and Molly 8, in the second grade, are interested in just about everything! The Touzalins live "surrounded by our local country club and the whole family plays golf, sometimes together. What bedlam!" (That's a verbatim quote. I'm not a golf-course architect and haven't figured out what it means to live "surrounded by a country club." It must be perilous commuting, however, especially returning home on fine summer afternoons, ducking golf balls!) Bob also wrote that he sees **Jack Bittel**, XIX, from time to time. Jack is with Falcon Foundry Company, and lives in Poland, Ohio, just south of Youngstown. And Jack had mentioned to Bob having seen **Roy Haworth**, also XIX, recently in Chicago.

Richard S. Leghorn, VIII, President of ITEC Corporation, was featured in the January 25, 1961 issue of The Christian Science Monitor, in a full-page article entitled: "Report From Moscow." Dick was one of several Americans who participated in the recent Pugwash conference in Moscow, and was one of six M.I.T. men who appeared on a TV panel reporting on the conference. The Monitor article was based on the WGBH-TV program which discussed the unusual conference in Moscow attended by leading Eastern and Western scientific and other experts to confer on aspects of the arms race and how to control it. Quoting Dick in part: "Science in Russia is run by the so-called Presidium of the Soviet Academy of Science, and they had every member of the Presidium there with us during the 12 day conference. . . . As far as the Soviet scientists are concerned, I became convinced that they want a disarmed world because of their fear of . . . mainly China and Germany . . . because they think they can take over better in a disarmed world . . . and because they'd like to free up their economic and technical resources so that they can take over better. . . ." In case you aren't aware of it, Dick Leghorn is one of '39's most prominent classmates. And as would be expected of one who heads up the rapidly growing company of ITEK, specializing in information technology, Dick is most articulate.

John E. Wood, 3rd, Grad-V, is president of Enjay Chemical Company, a division of Humble Oil & Refining Company. Jack, with offices at 15 West 51st Street, New York 19, N.Y., lives in Greens Farms, Connecticut, and is a regular commuter; when the New Haven is running, that is. Jack wrote that after leaving Tech in '39 he spent a year with Esso Research and Engineering Company in Linden, N.J. He then spent about 15 years at the Esso Refinery at Baton Rouge, in various supervisory and administrative jobs connected with the chemical end of Esso's manufacturing activity. He moved to New York in '56 to become general manager of the Chemical Products Department of Esso. Jack then became president of Enjay Company, which on June 1, 1960, was reorganized into Enjay Chemical as a unit of Humble. He says that other M.I.T. men are also with Enjay: A. D. Green, '26; W. F. Walt, '33; and R. K. Dix, '43.

Bill, XV, and **Adie Pulver** Christmas-carded that they took a thrilling 18-day charter group trip to England, Germany, Austria, Switzerland, and France last summer. England—Jaguar business; Germany—Passion Play; Paris—"wunderbar!" For family activities, Pat is at St. Lawrence University, Canton, N.Y., and loves all of it. She's on the ski patrol; a dream come true. Fred is still working hard at Hotchkiss. And Joy is in high school, on the honor roll, Student Council, and thinking of Wellesley, following Adie's footsteps. . . . Here's an address change from **August B. Hunicke**, II. Gus and Prilla are living at 80 Fenwood Drive, Old Saybrook, Conn. No word about Gus' job change, but this note about son Jim: he's at the Institute, plugging like mad, but happy!

A Christmas card from the **Casselman** family brought with it a fine photo of the group: Bob, XV, Dorothy, Margie (now at Wellesley), Carl, Ted, and Fritz. The photo, of course, was a Polaroid product. . . . Another note from a Christmas card, this time from **Frederick**, XV, and **Virginia Grant**. Fred and Ginny "managed 3000 miles through Western Europe with our two girls this past summer, all packed into a Morris Minor station wagon, and topped it off with a 10-day visit with my sister and her two girls in England. Karen entered Vassar this fall." Fred, with his own investment counseling business, can be reached at Box 186, Wellesley Hills 81, Massachusetts.

George R. Blake, VI-A, manager of the Worcester office of Westinghouse Electric Corporation, leads a busy life, according to a clipping from the Worcester, Mass., Telegram, of January 12. George started work with Westinghouse in 1940, in Pittsburgh. During the war he served as a radar officer and unit commander in Europe. Later he served as an education officer directing the schooling of American troops stationed in Germany. Returning to Westinghouse, George transferred to Worcester in 1946. Both his military, electronic and educational training have proved to be of value in subsequent years. George has been a faculty member for 12 years at Worcester Junior College, where he teaches an

electrical engineering application course in the evening school. And as a lieutenant colonel in the Army Reserve, he teaches the command and general staff course in the 1036 U.S. Army Reserve School, in Worcester. A registered professional engineer, he is past chairman of the Worcester Section, American Institute of Electrical Engineers. As if the foregoing didn't occupy enough of his spare time, George has been a member of the West Boylston town bylaws committee since 1955, and is currently seeking election as a member of the School Committee. The Blakes, with one boy and one girl, live at 44 Scarlett Street, West Boylston.

Albert Heath Chestnut, III, and Helen, are just as busy as your undersigned secretary with four children, but instead of four girls, Al and Helen have two and two: Ann, Mary, David, and James. Al is an engineer with Buffalo Forge, Buffalo, New York. . . . As for me, to round out this longer-than-usual account of thirty-niners, I'm buildings editor for McGraw-Hill's "Factory" magazine, with the principal assignment of handling an annual buildings issue featuring the Top Ten manufacturing plants of the year. The job takes me into 25 or more top-flight plants each fall and early winter, requiring between 15 and 20,000 miles of travelling. Then I spend several months preparing articles on each plant, endeavoring to put my engineering background to good use in getting the plant stories across to our readers in as articulate and accurate a fashion as possible. Lucille ("Buddy" to her Wellesley classmates) is kept busy with Ann 11, Mary 9, Martha 7, and Cathryn 5. Our principal family activities are sailing and figure skating. We like to be on the water year 'round! Lucille and I have two nine and one-half-foot "Turnabouts" and a 13½-foot "Blue Jay," in which our children are learning to be quite proficient sailors and in which we conduct sailing classes for children of friends. Our gals are the instructors, so to speak, and Lucille and I ride herd on the sailboats in an outboard. Keeps us outdoors, as a family, and we have lots of fun. To prove the year-long "on-the-water" claim: The weekend after the last boat was slung from the garage ceiling for winter storage, in mid-October, we started ice-skating each Saturday morning at the nearby rink in Norwalk!—**Oswald Stewart**, Secretary, 31 Birch Road, Darien, Conn.

'40

Bill Dooley has been appointed marketing specialist in the commercial development division of Sun Oil Company's research and engineering department. . . . **Peter Colmar** is chief of staff of the Coast Guard's Fifth District. . . . Members of our class have always been of an inventive turn of mind. The latest proof is the award of patent No. 2,938,507 for a single plane manifold to **John Burnell**. . . . **Arnie Wight** is New England sales manager for Rohm & Haas Company's

Resinous Products Division. He and Margaret live in Amherst, N.H., and have four youngsters, Nancy 16, Marsha 14, Margaret 11 and M. Arnold, 3rd. . . . **Hap** and Alice **Farrell** still are residents of Weston. They have two youngsters, W. Happer, Jr., 12, and Alice eight. Hap is project manager with Jackson & Moreland, and at the Reunion listed as one of his achievements "still employed." On the homefront, he is changing a gravel pit into a garden of Eden.

Jack and Winifred **Gray** also are Massachusetts residents, living in South Natick. Jack is assistant general manager for the Boston Division of Minneapolis-Honeywell. He is chairman of the Natick Town Finance Committee and a member of Natick's Industrial Commission. In his spare time, Jack goes yachting. . . . There is no need to tell much about **Phil Stoddard** who is our treasurer in charge of vice at the Institute. Phil and Lucille have two children, Janet 13, and Jeffrey 11. In addition to his many duties at Tech, Phil has time to be trustee of the South Shore Hospital and the Hingham, Mass., public library. . . . **Ed Fettes** recently joined Koppers Company, Inc., as manager of Plastics Research. Ed and Lee live in Levittown, Pa., and have six youngsters, Evelyn 17, JoAnne 16, Carole 15, April 14, William 13, and David 10. Ed received his Ph.D. at night from Brooklyn Poly. He was with Thio-kol from 1942 until May of last year as director of research when he left to join Koppers.

As the finale to the reunion resumes, your secretary is still practicing law at the address indicated below. Norma and I have two boys, Eric nine and Karl six. For those of you who were at the reunion and might wonder about our daughter, Margaret Rose, who was two and one-half months old at the time, we discovered in August that she had cancer, and following her second operation she died on January 21. While she lived only a short while, she gave much joy, more than many people do in a full life time. . . . This brings to a close this issue of the Class Notes. Unless there is an increase in correspondence, next month's column might be missing.—**Alvin Gutttag**, Secretary, Cushman, Darby & Cushman, American Security Bldg., Wash. 5, D.C.; **Dr. Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'41



Bob Mayer has been appointed manager of the Product Development and Design section in the General Electric Ordnance Department at Pittsfield, Mass. (In this position, he's my boss.) With GE since graduation, Bob worked on gunfire control systems during the war. In 1949, he joined the Guided Missile Department, and in 1956, transferred to Philadelphia when the Special Defense Projects Department was established there. In June, 1957, he came to Pittsfield as manager of systems engineering, and since September, 1959, had been consult-

ing engineer, Advance Projects. Bob was chosen outstanding engineer of 1950 by Eta Kappa Nu, has received the Coffin Award (GE's highest), holds patents in the field of servomechanisms, and with Hal Chestnut '39 is the author of "Servomechanisms and Regulating System Design." He is married, has three sons, and is a member of the Planning Board of the Town of Dalton. . . . **Bill Ahrendt** writes, "My past I will sum up in one sentence: went in the Navy, got out, founded a company, wrote a couple of books, sold the company, retired. Starting in March, I will be visiting professor at the National University of Engineering, Lima, Peru, for a one-year tour of duty, teaching (in halting Spanish) a course in instrumentation. Be tickled to see anyone down there, and sorry to miss the 20th." **John Murdock**, in his letter, added a little to Bill's exploits, which Bill, modest type that he is, didn't mention. Reports John, "Two months ago Bill didn't know Spanish, but he does now! He's been working at it night and day." John's activities sound pretty interesting, as he goes on to say, "**Herb Stein** and I still make perlite processing machinery and we are sending it all over the world. I recently returned from Japan, where I spent a fabulous 30 days helping them start up one of our units. I travelled all over Japan looking at mining properties and processing plants related to perlite. Almost every night, we had a 20-course dinner lasting four hours in a geisha restaurant. One night, I admired the samisen the girl was playing, so my host gave me one! I can almost play Gion Kouta on it, but it sounds terrible in my hands."

Norman Michels, who took his master's degree in 1941, has been appointed vice-president, facility planning and appropriations for United States Steel. Beginning with the company in 1941 in Pittsburgh, he has held engineering positions in Gary, Ind., and Birmingham, Ala., the most recent being vice-president, engineering, Tennessee Coal and Iron Division. . . . **Ted Sherburne** is heading a new program of the American Association for the Advancement of Science, aimed at improving public understanding of science. He will have responsibility for helping groups and organizations of all kinds, especially those in the mass media, to provide better material on science for the public. He has been statewide co-ordinator of educational television for the University of California, supervising television development on all seven of the university's campuses. . . . Navy Captain **James Brown**, who received his master's degree in 1941, has been selected as one of the participants in the 39th session of the advanced management program at the Harvard Business School. . . . Mrs. G. Lynde Gately (nee **Marie Fortunati**) has been named director of the Division of Health Information of the Massachusetts Department of Public Health. She is executive secretary of the Massachusetts Health Council, and a past president of the New England Health Education Association.

The first mailing for the 20th Reunion has gone out; if you didn't get yours, or misplaced it, or have any questions, please

get in touch with the undersigned.—**Ivor W. Collins**, Secretary, 9 Sunnyside Drive, Dalton, Mass.; **Henry Avery**, Assistant Secretary, Pittsburgh Chemical Co., Grant Building, Pittsburgh 19, Pa.

'42

Tens of thousands of General Electric Co. stockholders learned recently that **Jerome T. Coe** is one of their outstanding executives. Jerry was selected as one of four department general managers, of more than 100 in the decentralized G.E. system, to have his picture on the cover of a Share Owners Quarterly bulletin. Jerry also appeared in five of the inside pictures, and great prominence was given to his own Silicone Chemicals Department. While specific financial figures were not published for any departments we did note that the average department has over \$40,000,000 in sales and more than 2800 employees. Our thanks to Ivor Collins, Secretary of '41 for finding and passing along this special item.

We were very pleased to receive a copy of the annual Christmas letter published by **Edward F. Thode** for his widespread family and circle of friends. Some extracts of interest here are: "The whole family, Ed, Isobel, Karen, Steve and Joner, travelled east, visiting historic sites around Gettysburg and Valley Forge as well as touring the highlights of Washington in one and one-half days. From there we took in West Medford, Mass., Orono, Maine, and Glens Falls, N.Y. Ed travelled from coast to coast, presenting papers at the TAPPI Annual Meeting in New York (February); Alkaline Pulping Conference in Portland, Ore. (August); Forest Biology Symposium, Seattle (August); and Engineering Conference, Jacksonville (October). During our trip in June he spoke to the Maine-New Hampshire TAPPI meeting in Whitefield, N.H. In December he attended the A.I.Ch.E. Annual Meeting in Washington. Joner is a budding engineer if we ever saw one! In 'show and tell' in kindergarten he has brought such things as parts of a carburetor he had disassembled, and control panel wires (defective) from an IBM computer. He now has his own switchboard complete with magneto telephones, lights, telegraph and miscellaneous non-functional sound effects. He would rather string and splice wire than play with toy fire engines. We haven't enrolled him at M.I.T. yet, but it is something to think about."

This column thanks the many who have sent us Christmas cards, and promises to edit as necessary any other family circular letters you may be kind enough to send. But next December is a long way off and we have lots of space to fill between now and then. . . . **George A. Granitsas** came up from Southbridge and Marlboro to attend a recent Boston Optical Society meeting. Over pre-dinner cocktails I found out that metallurgy (his field) and optics are now being wedded in the metal coating of optical fibers for fiber optics, an important program at American Optical Co., his place of work

since 1946. George also holds a special record. He has lived at 259 W. Main Street in Marlboro at least since our freshman days in 1938. . . . **Dr. Roland B. Kimball**, a meteorology graduate student with us is now chief, Division of Instruction, New Hampshire State Department of Education. After service with the Air Force Weather Service from 1942 to 1946 in the Arctic and North Atlantic he was a meteorologist for American Airlines. He then taught high school mathematics in Concord, N.H. While teaching and performing administrative duties in New Hampshire he earned a Ph.D. from Harvard in 1958. At the present time he is also an instructor in mathematics and education with the University of New Hampshire Extension Division. He is co-author of "Education for Effective Thinking" and has spoken widely on "Students—Brilliant and Gifted."

Just arrived is a reprint of "Reconstruction—Charles River (Mass.) Dam Lock Gates" by Prof. **Paul S. Crandall**. The paper appeared in the Journal of the Boston Society of Civil Engineers. . . . The latest in a long string of address changes for **Charles R. Stempf** is Getz Bros. & Co., Empire House, London, England. . . . Only slightly less traveled is Comdr. **Bernard W. Moulton** of the USS St. Paul out of San Francisco. . . . **Wilfred H. Shaw** is back in Avon, Conn., after a stay at Sherman Oaks, Calif. United Aircraft has moved him back and forth across the country several times. . . . **Linwood P. Adams** has arrived in Lexington, Mass., from Dallas.

We record a promotion in the Brazilian Navy—new Rear Admiral is **David O. Coelho de Souza**. . . . Capt. **William R. Franklin**, USN, is now in Washington with the Office of Naval Weather Service. . . . **Arthur S. Gow, Jr.**, has moved to Buffalo, and **Edward C. Telling** has moved to Cortland, N.Y.

End of notes from your secretaries: **Ed Edmunds** from Albuquerque, **Jack Quinn** from Hawthorne; **Bob Keating** from a new home on Bobbie Downs in St. Louis; and **Lou Rosenblum** from snow-clogged Burlington, Mass. The Tech/ops parking lot is now almost as bad as the streets of Cambridge used to get. And the streets of Cambridge are now impassable for cows. Best wishes until spring.—**Lou Rosenblum**, Secretary, Tech/ops, Burlington, Mass.

'43

I received a fine letter from **Greg Gagarin**, Assistant Vice-president, Foreign Operations, of W. H. Winer, Inc., of Washington, D.C. Greg writes, "I've delayed writing you, but since leaving New Haven two years ago I've been really moving about. Two years ago I joined this company in their foreign operations department. After an accelerated training in making a metallurgist and mechanical engineer out of a Course VI man, I'm now selling railway devices throughout the world. There isn't even a piece of wire in our products and I am dealing with many foundries, who

are our licensees abroad. In the last year I've covered Mexico, South America, Western Europe, Egypt, Turkey, East Africa Federations, Rhodesias, Mozambique and the Union of South Africa. We have purchased a house in Chevy Chase, Md., and I am always happy to get home after these trips, and usually seem to get a good reception. The headquarters of the company being in Chicago, I often visit **Bruce Horst** in Rockford, where he is now manager of manufacturing for Barber-Coleman."

Robert W. Beatty has been appointed chief of the Microwave Circuit Standards Section of the National Bureau of Standards Boulder Laboratories. With the Bureau since 1944, Bob has been responsible for standards and measurements of impedance, attenuation and power at UHF and microwave frequencies and has been associated with the design of a number of precision attenuators. He received a B.S. degree in Electrical Engineering in 1939 from George Washington University and his master's degree with our class. He has had experience with the Naval Research Laboratory and was a staff aid at the M.I.T. Radar School during World War II. He later served as an electronics officer at the U.S. Naval Shipyard in Pearl Harbor, Hawaii. For several years he was a consulting radio (broadcast) engineer with a firm in the radio industry. He recently developed an adjustable sliding waveguide termination that facilitates microwave measurement. It is electrically stable, easy to adjust, reduces reflections to a minimum, is durable, and is relatively simple to construct. . . . **Joe M. Smith**, professor of chemical engineering and chairman of the Chemical Engineering Department at Northwestern University, was named winner of the 1960 William H. Walker Award of the American Institute of Chemical Engineers. It was presented to Dr. Smith at the annual meeting of the Institute in Washington in December, 1960. Dr. Smith received his bachelor's degree in applied chemistry from California Institute of Technology in 1937 and his doctor's degree with our class. He is the author of some 50 books and technical articles. His research specialties are the interaction of physical and chemical processes, heat transfer, thermodynamics, particularly thermodynamic properties of fluids, and applied chemical kinetics and reactor design.

Robert S. Reebie has been appointed to the position of director of Industry Planning for the New York Central System at its headquarters in New York City. He will be responsible for development of programs to provide counsel to shippers in the logistics of production and distribution. Bob moved from Chicago and is now living on Holly Lane in Rye, N.Y. . . . An article in the Chicago Sun-Times in December, 1960, entitled "Engineer Parlays Relaxed Mood Into Profitable Asset," describes **Bud Meissner's** office, a heavily carpeted "living room" with three soft and comfortable divans surrounding a marble topped coffee table. Soft, subdued music flows from the office communications system and on the walls hang the works of modern ar-

tists. Bud spends eight to 15 hours daily in his office and believes that it ought to be a pleasant place. He is president of Meissner Engineers, Inc., one of the leading companies in the country in industrial, process and civil engineering, with a staff of over 250 persons.

Captain **Carl Hirschberger**, U.S.N., retired, was married in January to Lenice Fairbanks Krull. Captain Hirschberger graduated from the Naval Academy in 1937 and received his master's degree with our class. Mrs. Hirschberger is a graduate of Oberlin College and taught English at Tunghai University in Taiwan from 1954 to 1956. . . . Numerous change of address notices have been received.

Donald Dissly is with The Courier-Journal & Times in Louisville, Ky.; Captain **Guy L. Ottinger** moved from Portland, Maine, to Sunnyvale, Calif.; **Stanley Cohen** is now at Washington University in St. Louis, Mo.; **Bridgford Hunt** is living in Upper Montclair, N. J.; **Fred Allardt** lives in Quogue, Long Island, N. Y.; **John E. Gayton** moved from Illinois to Westport, Conn.; **Bill Terry** in Mineola, N. Y.; and **Jim Holt, Jr.**, is at the Orange Memorial Hospital in Orange, N. J.—**Richard M. Feingold**, Secretary, 10 North Main Street, West Hartford 7, Conn.; Assistant Secretaries: **Christian J. Matthew**, Arthur D. Little, Inc., 314 Battery Street, San Francisco, Calif.; **John W. McDonough, Jr.**, 413 North Miami Street, Wabash, Ind.

2-'44

These notes will be published just about the time that the M.I.T. Centennial Celebration will be taking place April 7-9. I am planning to be there, and will be looking forward to seeing some of you fellows to get more news for the notes. Do try to contact me if you are able to make it. . . . I received a note from Mr. Garry C. Myers, Sr., giving me more details on his son Garry's family. His five children, aged eight to 15 were assigned by will to his brother Dr. Jack Meyers and his wife Evelyn. Garry's parents are taking over the management of "Highlights," the children's magazine that Gary and his wife had founded and built up. . . . News of other classmates has come in from various sources. **Walter Jaeger** has been appointed director of facility planning for the American Hardware Corporation, located in New Britain, Conn. He joined them from American Cyanamid in 1949 and has held various positions. Walt and family, including two children, live in New Britain. . . . A note in the New York Times for January 15 gives the story on the proxy contest being waged by **Clint Murchison, Jr.**, who graduated in '44 with an M.S. He was deeply involved in the contest for Alleghany Corporation control, and from the article, came quite close to winning. Clint lives in Dallas where he operates Murchison Brothers under a partnership arrangement with his brother John.

The Hughes Aircraft Magazine "Vectors" for January describes their fellow-ship program. One of their men who has

taken advantage of the program is **Warren E. Matthews** who received his B.S. and M.S. at Tech in '44, and then went on to a doctorate at California Institute of Technology in 1950. He is presently assistant director of the Hughes Research and Development Laboratories and manager of the Infrared Laboratory. He is responsible for research, design and development of infrared systems, subsystems and components. . . . Aerospace Engineering for January carries an article by **John Barnby** on Analysis of Weapon Systems Effectiveness. The accompanying thumbnail sketch gave the following information. John went on to take an M.A. at George Washington University, and a Ph.D. at The American University. After four years with NACA Langley Laboratory, he joined the Navy Bureau of Aeronautics in the capacity of a guided missile project engineer. With the Navy he has worked on both surface-to-surface missiles and air-to-surface missiles, becoming head civilian in charge of all Navy air-to-surface guided-missile developments. He is presently engaged as a staff analyst with the Weapons Systems Evaluation Division of the Institute for Defense Analyses.

A couple of weeks ago, Mardi and I spent a very pleasant evening with **Burt** and **Bobby Bromfield**, who live in Weston, Mass. His present hobby is making modern furniture, and he has some beautiful examples of his workmanship in the dining room. His biggest piece to date is an English walnut dining room table. He has taken this hobby up since he sold his boat last Fall. During the evening we saw some of the color slides of their trip a couple of years ago by car around Europe. They are very interesting, and prove that the Bromfield family didn't miss too much on their five month stay over there. Their next trip, by the way, is going to be to the Far East. I certainly hope that Burt's son Steven hasn't lost his touch photographically by the time they take that trip! . . . **Bob** and **Priscilla Breck** were also there, and he informed me that he is general services manager with American Mutual Liability Insurance in Boston. They live in Weston where Bob is on the Town Board of Assessors. He indicated that he did little assessing, since that is done professionally, and all the board does is review the information. . . . **Doug** and **Grace Banus** were also there from Topsfield. Since he lost his boat on the rocks of Marblehead, he is now figuring all the possible ways he can get back with his own deck under his feet. Doug is with M.I.T. Lincoln Laboratory, working on solid state research. He had a lot of information on some of the other fellows in the class. He said that he had heard that **Bob Plachta** had moved to California from Wellesley Hills, but he didn't know exactly where in California Bob was going, or who Bob was going with. Can anyone help? Doug ran into **Sam Parkinson** at the recent New York Boat Show. Sam lives on Long Island, and is president of East Coast Boats. Sam used to commute to Stamford by power boat, but Doug believes that activity has recently ceased.

Bill Hopkins is living in Darien, Conn., and is the Admiralty Law consultant to Ore Steamship Company in New York City. Bill received his law degree from Boston University. . . . Another report from Doug gives news of **Arnold Martin** who graduated in Course XVI with us, and then went on to take an M.S., also in XVI. Arnold is with North American Aviation at Redondo Beach, Calif. He married a California girl, and they have just had the fourth addition to their family. . . . **Lamar Field** is now located in Nashville, Tenn. He is professor of Chemistry at Vanderbilt University, and assistant to the head of the department. . . . The last report from Doug was that he had heard that **John Cornell** is with Dodge Chemical, but as for John's location we could only place him in North Jersey. Drop me a note John, and bring me up to date.—**Paul M. Heilman**, Secretary, Reflectone Electronics, Inc., West Main Street, Stamford, Conn.

'45

These notes are being written under adverse winter conditions, our umpteenth blizzard of the year. We trust they appear under more favorable weather conditions such as April showers. Unless you, and this means each and every one of you, send in some news these next few weeks we shall soon exhaust our reservoir of information—last year's Reunion questionnaires and routine data from the news service.

After several years at G. L. Cabot's Carbon plant in Willsboro, N.Y., **Art Hall** has returned to the parent organization, Godfrey L. Cabot, Inc., on High Street in downtown Boston. . . . **Robert W. Hallock**, a G.M. employee these many years, has forsaken the wilds of Syosset, Long Island, for the Swiss Alps. Bob, an old Company One Commander, is with General Motors Suisse in Bienne, Switzerland. . . . **Tom Markey**, Merck & Company's golfing wizard, has moved from St. Louis to Cleveland as district sales manager, Products Division. Tom and Alice live at 532 Fair Street, Berea, Ohio. . . . **Donald P. Kahn**, one of our more literary members, is now with The Philadelphia Inquirer after several years with TV Guide. I saw Don in one of Philadelphia's luncheon clubs (it's the only way one can get a good meal) three or four years ago and he appeared most happy in this facet of the advertising business.

Welcome to **John H. Cullinan** of Natick who has just changed his class affiliation from 47 to 45. We are glad to have you aboard, John. . . . **Ogden Ray Smith** is now "down under" working in the Chemical Products Department of Vacuum Oil Co., Pty. Ltd., in Altona, Victoria, Australia. Yes, Ray is probably complaining about the hot weather as I sit here not looking forward to tomorrow's snow removal problems. . . . **Don Buell** still holds down part of the California fortress as he continues at the NASA Ames Research Center at Moffett Field. . . . After many, many years at Lafay-

ette, **Ted Blakeslee** is now assistant professor of Engineering at Trinity College in Hartford. Ted is another Course XIII graduate who has made his merry way in another direction. Ted, Virginia and the two kids, Ted, 3rd, and Marguerite, live on Marion Drive in Manchester, Conn. . . . **Donald J. Lovell**, a fellow Connecticut resident about two years ago, is out of South Bend, Ind., and on to Ann Arbor, Mich., as he continues to enjoy the challenges of Bendix Systems. . . . **George** and **Judy Daskal** are due some sort of an award, for it isn't everyone that has twins. Jessica Lynn and Kathryn Marie joined their two-year-old sister, Elizabeth in February, 1960. Six months later the Daskals had to move! George—Secretary of Perfection Gear Co.—and family are now on South Chicago Beach Drive, Chicago.

You ex U-12ers who are still Navy minded will be pleased to know that the majority of our Course XIII-A associates have all made Captain. As I recall most of the post graduate naval officers in our class were 1940 graduates of the Naval Academy. Our hat is off to one of these boys (as an apprentice seaman it was "Officer"). Captain **Nobert Frankenberg** now stationed at the War College in Newport, R.I. Capt. Frankenberg acknowledged our reunion solicitation last year by indicating that the letter was the best he had ever received! . . . Although this solicitation letter bore more than one signature it was basically the work of one **Charles F. Street**. Speaking of Chick, he has left the Manufacturers Mutual Insurance Company to open a Saab agency in Woonsocket, R.I. If any of you desire one of these Swedish compacts, send in your order. Chick, Helen-Marie, Ann and Sara continue to spend most of their spare time sailing in Narragansett Bay. . . . **Samuel E. Haines, Jr.**, a Marine V-12 deportee to Cornell, continues with the Reading Co., in Philadelphia. . . . **Robert M. Gould**, a reunion attendee with his wife, Ruth, lives in Livingston, N.J., and carries on his business in near-by Newark. Bob is owner of Goodman Electric Machine Co., and executive vice-president of Thermal-Aire, Inc., both at 1060 Broad St., Newark.

After many years in Philadelphia, **Edgar Andrews** has returned to sunny Florida. Ed and family are at Fernandina Beach. . . . Possibly we should spend a moment with our "married classmates." Firstly, **Jep** and **Paddy Wade**. You may recall that the Wades married prior to graduation in March 1945. No USN restrictions! After graduation Jep earned his law degree at Harvard and reached a real milestone in his career last year when he became a partner in Choate, Hall & Stewart, Boston. Jep and Paddy, together with William, Emily and Randy live on Old Billerica Road in Bedford, Mass. . . . The other married classmates are, of course, **Chuck** and **Jeff Buik** of Essex Junction, Vt. Chuck spent several years in the Civil Engineering Corps of the Navy before getting his teeth in big business up in Rochester, N.Y., in the mid-50's. About two years ago Chuck went into the paper container

business in Burlington, Vt. From all reports it appears to be a most successful operation. Jeff lists her occupation as herder. Not only does she have the care of four growing children but countless herefords and sheep as well. Not all graduates engineer or raise sheep! . . . At last report **Raymond A. Dexter** was at the Salvation Army School for Officers Training in San Francisco. . . . Dr. **Dunc Luce** has left Cambridge to relocate in Philadelphia at 2020½ Addison Street. The "half" causes me to ponder! . . . **J. Ray McDowell**, 3rd, is back in Fanwood, N.J., after several years in Rochester, N.Y.

John M. Thompson has moved from Minneapolis to East Mountain Road, Glendale, Calif. At last report Jack was a product manager with the Chemical Division, Minnesota Mining & Mfg. Co. . . . **Robert "Chub" Turner** continues with John Hopkins Research Center in Silver Springs, Md. . . . As indicated at the time of our reunion our security analyst, **Chris Boland**, has moved. Chris, Jean and tribe, only five, have acquired an old ark down in Greenwich, Conn. From all reports it is quite a house. Chris continues with Kidder, Peabody & Company, as a senior security analyst in the drug and chemical field. . . . **George "Curly" Bickford** remains at Carrier Corporation in Syracuse as a Special Projects Engineer. . . . Dan Cupid continues to include class members among his victims: **Louis Isenberg** and Marilyn Sybil Drevitch were married in Boston in early January.

One of the recent snowstorms caught Treasurer **Bill McKay** home without his briefcase. Accordingly, he has at long last completed his 15th Reunion Treasurer's report which has, after due deliberation, been approved by Prexy **Dave Trageser**. In brief, the books balance. Now for a few details: There were 103 classmates who forwarded dues in the amount of \$526.00; in addition, 47 reunion registrations brought in some \$470.00, while favors and Tech Coop concessions resulted in an additional \$110.95. Total receipts \$1106.95. Disbursements were in the aggregate amount of \$807.74 which means that some \$299.21 has been transferred to our savings account. Actually, the Reunion resulted in a net deficit of \$107.40 as compared to a deficit of \$127.26 at the time of our 10th Reunion. Half of our printing and postal costs were allocated to class while the balance of all remaining costs were directly charged to the reunion. We will be pleased to forward at nominal charge copies of your Treasurer's Report to all you would-be auditors!—**C. H. Springer**, Class Secretary, Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York 17, N.Y.

'46



Due to a slight delay in mailing out the reunion propaganda some readers of these columns have thought they had been left off the mailing list and so have

written your secretary for information. **Jim Goldstein** and his wife Rosanne will attend and plan to journey to Cambridge after the reunion for alumni day. . . . **Sterling Bushnell** and wife will be there with four children, ages two through 11, so if anyone else is wondering about bringing children you now know you will be in good company. . . . **Seward Kennedy**, a distant cousin of J.F.K., will be there unless his job as special assistant to the President keeps him away.

We received a nice letter from **Dave Moyer**. Dave and his wife will make the reunion a real vacation and spend a week on the Cape after it is over. The last time I received a letter from Dave I quoted quite liberally from it in this column and shortly thereafter I received a card from him admonishing me for my actions. I shall risk his displeasure again, though, because I think his activities are quite interesting. Dave is a registered professional engineer in Ohio and operates a consulting business from 94 Patterson Road, Dayton 19, Ohio. Dave says that his business in measurements and controls has expanded somewhat in the past few years. He got involved in a medical research project with an M.D. and presented a paper to the last general meeting of the AIEE on "Instrumentation for the Diagnosis of Coronary Artery Disease." The scheme involves analyzing the frequency spectrum of the acoustical noise generated by the heart. Dave recently received notice that his paper received second prize in the Electronics Division for 1960. A more recent project involved the animation design for the Delco Products Division garage door opener display in the GM Futurama Show. He also did the animation work on the Caterpillar Tractor Company's "Torque Divider" display, and is presently involved in the design of an elaborate test fixture for the P. R. Mallory Co., which will require 400 transistors to check some 50,000 decision points on their automatic timers.

Jim Craig, vice-president of the Hotel Corporation of America, was in charge of the building of the new Carlton Tower, recently opened in London. Next on the list are hotels in Paris, Rome and Vienna. . . . **Richard C. Mulready** has been appointed Chief, Advanced Technology, for Pratt and Whitney Aircraft in West Palm Beach, Fla. In this new job he will be responsible for directing study programs and preliminary design work for new, advanced projects. Prior to this appointment he directed the development of the LR115 rocket engine which will power the Centaur space vehicle. The LR115 is the nation's first liquid hydrogen rocket engine. The Mulready's have two children and live at 239 Beacon Lane, Jupiter, Fla. . . . **Antonio C. M. Nunes**, acting general manager, Society Anonyme du Gaz de Rio de Janeiro, is attending the 39th session of the advanced Management Program at the Harvard Business School. He will be there until May 19. . . . **Pearson H. Stewart** was recently selected "Tar Heel of the Week" by the Raleigh, N. C., news and Observer for his activities in promoting research and industrial devel-

opment in the state. Pearson is vice-president, Planning, of the Research Triangle Foundation of North Carolina, and executive director of the Research Regional Planning Commission.

Ernie Buckman is manager, Renting and Development, of Oliver Tyrone Corporation, an investment company. He makes his home at 270 Grant Street, Sewickley, Pa. . . . **David Saveker**, Commander, USN, is Force Maintenance Officer of COMSERVPAC and as such is responsible for engineering, electrical and hull maintenance, overhaul and repair of the combatant support ships of the Service Force of the Pacific Fleet. He will be promoted to Captain in July. He makes his home at 69 Topeka Ave., San Jose, Calif. . . . **Margaret Garritsen deVries** left the International Monetary Fund in 1958 and is now a research associate at George Washington University involved in research and teaching. Both she and her husband hold Ph.D. degrees from M.I.T. in economics. The deVries have one daughter and live at 10018 Woodhill Rd., Bethesda 14, Md. . . . Don't forget to send in your request for reservations for the reunion. The requests should be mailed to **Jim Craig**, 464 Commonwealth Ave., Boston 15, Mass., and must include your check to cover the registration fee, \$20, which pays for almost everything except the actual hotel accommodations.—**John A. Maynard**, Secretary, 15 Cabot Street, Winchester, Mass.

'48

Neither sleet, nor snow, nor hail, nor rain could prevent the mailman from delivering various clippings and et cetera to your scribe. Now that the question, "What happened to the good old fashioned winter," has been unmistakably answered, and I hope resolved, by the time this issue reaches you, the prevailing news of our classmates that has filtered through the wintry blasts around New York is recorded here. Wish we could bottle some of these temperatures for next August. . . . First, a literary note that **Vaughn L. Beals** was co-author of an article entitled "The Application of Impulsive Excitation to In-Flight Vibration Testing," which appeared in the January 1961 issue of *Aerospace Engineering*. At the Columbus Division of North American Aviation, Vaughn is Dynamics Engineering Chief and is responsible for aeroelasticity, acoustics, environmental vibration, and static and dynamic loads engineering. . . . It's back to school for Captain **Ernest F. Schreiter**, U.S. Navy, for Ernie was selected as one of the 150 participants in the 39th session of the Advanced Management Program currently being held at the Harvard Business School. . . . Also in the education field, Prof. **Martin Lessen** has been named chairman of the Department of Mechanical Engineering at the University of Rochester.

Did anyone notice that **Bernard M. Gordon** was pictured as one of the "Egg-head Millionaires" in the September 1960

issue of *Fortune*? Bernie is president of Electronics Production Service Corp. (Epsco, Inc.) in Cambridge, which he organized and still runs singlehanded. . . . **Elias J. Corey, Jr.**, received the award in Pure Chemistry for 1960, presented by the American Chemical Society.

William Hague of Carlisle, Mass., is now the busy president of an instrument representative firm, which he formed about a year ago. Bill was recently appointed the sales representative for H. H. Scott, Inc., instrument sales in New England. . . . As part of its overall plan to meet the rapidly increasing power needs in India's industrial metropolis of Calcutta, the government of West Bengal has awarded a contract, covering complete consulting services for a new super thermal power station, to the Kuljian Corporation of Philadelphia, Pennsylvania, of which **Arthur H. Kuljian** is vice-president. Art's contract calls for providing the design, engineering, construction supervision, and initial operation services for the power station, which will be located near Bengal on the Bhagirathi Hooghly River. . . . **Alfred J. Murrer**, who is assistant factory manager of the Gleason Works in Rochester, N. Y., will now also direct their new Machine Division, which combines all machinery and assembly departments concerned with the Gleason machines. . . . We also recently received a very unusual and clever "New Product Specification Sheet," announcing the arrival of a daughter born to engineer and architect, **Chuck and Phyl Licht**. Congratulations to you both. . . . We hope that the spring thaw will bring many of you to Cambridge this month for the Centennial Celebration. We're looking forward to seeing you at a healthy class turnout.—**Richard H. Harris**, Secretary, 26 South Street, Grafton, Mass.; **Harry G. Jones**, Assistant Secretary, 94 Oregon Avenue, Bronxville, N. Y.; **Herbert S. Kindler**, Assistant Secretary, 128 Elatan Drive, Pittsburgh 16, Pa.; **Robert R. Mott**, Assistant Secretary, Box 113, Hebron, Maine.

'49

Early in January Class President **Russell N. Cox** took the first steps towards establishing an executive committee for the class of 1949 to serve as an advisory group to guide the actions and activities of the class between reunions. Its functions will be to consider class participation in various M.I.T. activities and to consider other possible functions the class might undertake. Initially, the executive committee will consist of class officers and several classmates from the Boston area. The first order of business will be class participation in the Second Century celebration at M.I.T. in April of this year, about the time you read these notes. We hope to expand the group to a dozen or more including representatives from other areas. At present, the committee is as follows: Russell Cox, Fletcher Eaton, Archie Harris, Frank Hulswit, Stan Margolin, George McQueen, Wally Row, and Kemon Taschioglou.

Paul Schneeloch, Jr., (SB Course 9B) was married to Janis Irene Philipson in New York City on Saturday, December 31. . . . **M. A. Lynch, Jr.**, has been appointed assistant to the manager of product marketing for the Silicones Division, Union Carbide Corporation. After graduation he joined Linde Co., in Tonawanda, N. Y., doing inorganic and organometallic research. In 1956 he was transferred to the Silicones Division in New York. He became textile products manager in 1959. . . . We reported last year the assignment of Major **Carroll E. Adams, Jr.** as assistant area engineer, Iceland Area, Army Engineer District. In this assignment he was directly responsible for military construction projects of coastal radar sites and the Keflavik International Airport. For this work he has been presented a second oak leaf cluster to the Army Commendation Medal. He is presently assigned as the executive officer, Titan I Construction Directorate, Corps of Engineers Ballistic Missile Construction Office, Los Angeles. Major Adams was awarded the Army Commendation Medal in 1955 for duty in Austria and in 1958 for duty at Fort Belvoir, Va.—**Frank T. Hulswit**, Secretary, 14 Nadine Road, Saxonville, Mass.

'50

The Class of '50 is starting to get active with its correspondence. I'm grateful. The following notes are a summary of the activities of the members who are part of the Alpha Tau Omega Fraternity, courtesy of **Ted Metzger**. I certainly would appreciate hearing from more of the '50 men who can provide information such as Ted has done. I am sure many of you are keeping up to date in such a fashion but may not have thought of sending information to me for inclusion in the Class Notes.

Bill Bakemeyer is manager-Naval Air Defense Systems at Hughes Aircraft. On a short spring vacation in California last year he met **Don Starnier**, who was on his way home from the hospital where his wife had just delivered a baby. . . . **Norton Belknap** has much to report this year. It sounds like the "Golden Sixties" started out treating him right, for he has a new addition to the family, Randy, who was born September 22; a new and bigger house to help accommodate the family and guests; and a fine promotion at Standard Oil. He reports that his new job is secretary of the Board Advisory Committee on Investments. This committee is to advise the Board of Directors on investment policy and to review the investment programs of the affiliates, to see if they are in line with overall company policy. He notes that the work of this committee was described rather thoroughly in an August issue of *Business Week*. . . . **Jack Drysdale** has been promoted at Du Pont to division head of the Applications Research Division of the Pioneering Research Section. Jack reports that he and Gerry are kept busy chasing their three boys, but that they did have a chance to spend a pleasant

vacation on Cape Cod. . . . **Jake Ferguson** sent a note in a very impressive envelope from the "Harvard Club of Boston." He mentions that he made a trip to Boston and had lunch with the Ed Kerwins, '49, **Don Walkers**, and the **Dick Meyers**, but he didn't say that lunch was at the Harvard Club. Jake had his third son, Edgar Hull, on August 22, 1960.

Gordon Holme moved to Maryville, Tenn. He was transferred there in August to work on a high priority development project for Alcoa. . . . **Ted Metzger** has an addition to his family, a girl, Nancy Claire, born November 16, 1960. This is number three. As of last June Ted switched to a new job as quality control engineer in the G.E. Range Department. . . . **Dick Meyer** is manager, J-85 Engine Operations for the General Electric Company in Lynn. In this plant engines are made for the T-38 and missiles. . . . **Ray Moeller** is working as an industrial engineer for Kaiser Aluminum in Spokane, Wash.

Milt Rand reports that they have finally begun work on their new house, which they hope will have ample room for their five children. . . . **Bud Simpson** reports a new son, James Morgan, who weighed in October 18, 1960, at 6 lb., 15 oz. . . . **Don Starnes** has a new daughter, Patricia Jean, who was born June 10. Don has done some impressive engineering research to help him remember birthdays. First he notes that they were married in 1954 and children born at two year intervals, 1956, 1958, and 1960. . . . **Don Walker** is manager of Advanced Studies, Titan Re-entry Vehicle Project at AVCO. . . . **Jack Wilbur** moved into a new house this June in Worthington, Ohio, and they are still "up to their ears in painters and paper hangers."—**Gabriel N. Stillian**, Secretary, American Management Association, 1515 Broadway, New York 36, N.Y.

'51



We have a report that some of you have not yet arranged for sitters for the 10th Reunion next June 9 through 11. If you are one of these, hurry and get to work on the task.

George Boyden is living in West Acton, and he and Peggy have three children, Suzanne, Bonnie and Laurie. George is owner and founder of Saunders and Company of Upstate New York and is electronic representative salesman for the northern half of New England for Saunders and Company of Waltham. He has also performed as baritone soloist with the Boston Intimate Opera Company. . . . **Dave Findlay** reports from Canton, Ohio, that young Andrew Findlay was born on December 1 of last year. . . . **Hubert Knipmeyer**, who is with the film department of DuPont in Wilmington, is now the father of two sets of twins. The first twins, born in 1956, were identical boys. The second set, who arrived last August, were a boy and a girl. (Our readers will recall that we reported similar excitement in **Hal Siegel's** family. This could make our class famous.) Hubert received

his Ph.D. in Chemistry from the University of Delaware in 1957. . . . **Frank Koehler** has recently been transferred to Esso Standard's Supply Department, at New Providence, N.J., after eight and one-half years with the Marine Department as corrosion engineer. . . . **Margaret Irby Koenig** writes that being an army family keeps them constantly on the move and that, although they are at Fort Meade, they expect to be in California before long. She and Dick, who is a captain in the army, have three daughters, Barbara, Joan and Patricia. . . . **George Kostitsky** is in Baltimore, where he is project director at the Charles Center Redevelopment. . . . **Bill Krampert** is a marketing consultant with A. T. Kearney and Company, of Chicago. He and Jane have three children, Patty, Jenny and Peter. . . . **Arthur Krasnow** is founder and president of Atomic Personnel, Incorporated, in Philadelphia. Atomic Personnel is an employment firm for all types of nuclear personnel. Art and his wife, Pearl, have three daughters, Judith, Susan and Karen.

Bob Kress has been promoted to assistant chief of aerodynamics at the Grumman Aircraft Engineering Corporation. Bob, Frances, and their three children live in Massapequa, N.Y. . . . **Ken Kruger** is in private practice as an architect in San Francisco. . . . **Harry Kubick** is with Eastman Kodak as a machine design engineer, in Rochester. Harry and Diana have three daughters, Katherine, Linda and Elizabeth. . . . **Tony Kurtz** has started a new company, Kulite Semiconductor Products, the country's first producer of semiconductor strain gages. He and his wife, Margery, and their daughter, Jennifer, live in Teaneck, N.J. . . . **Larry Kuszmaul** and his wife, Harriett, are living in Lutherville, Md., and are enjoying keeping up with a very young daughter, Ellie. Elizabeth. . . . **Hippocrates Kyros** has been in Spain for over four years as office engineer with Brown-Raymond-Walsh, but hopes to be in Cambridge for the reunion. . . . **Bill Landenberger** is president of Valley Forge Securities, Inc., in Philadelphia.

Horace Lander is assistant director of Research with Youngstown Sheet and Tube. He received the R. W. Hunt Medal for the best original paper dealing with iron and steel during 1959. Horace and Donna have two daughters, Karen and Kathy. . . . **John Lang** is with the Continental Oil Company in Ponca City, Okla., and has been engaged in supervision of construction of some very extensive petroleum facilities, including a complete refinery in Panama and a 300Mbbbl underground storage cavern for propane. He and his wife, Gloria, have three children, Jana Leigh, John H., 2nd, and Maree Dee. . . . **Al Larsen** writes from Wakefield that he is still at Raytheon, where he has been advanced to group supervisor of the product design and small mechanisms group. Al and Esther's two children are Richard, two, and Janet, one.

Bob Lucas has been with Arthur D. Little in Cambridge, since 1953. He and his wife, Joan, now have three children, Peter, Paul and Christine, and reside in Stoneham. . . . **Bill Lucas** is living in

Haddonfield, N.J., and was recently promoted to director of manufacturing liaison for Atlantic Refining Company. Bill and Mary have a one-year-old boy, Steven. . . . **Bob MacCallum** moved in 1959 from Milwaukee to Detroit, where he is sales engineer for Union Carbide Metals Company. Bob and his wife, Sharon, were married in June of 1959. . . . **Bill McClary** is with the Analog Simulation Group at North American Aviation, in Columbus, Ohio. He and Marian live in nearby Reynoldsburg and have three children, Melody, John and James. Bill is an active member of the M.I.T. Educational Council, since his appointment about a year ago.

Ken McCoy and his wife, D'Lou, are now trying to keep up with SEVEN small McCoys, Caryn, Laureen, Roxanne, Melanie, Craig, Kyla and Karsten. Ken says that the youngest is 21 months old. . . . **Dan McKay** has opened his own consulting engineering and construction management office in Groton, Conn. Dan worked with the Dravo Corporation and the W. J. Barney Construction Company before striking out on his own. . . . The Reverend **Charlie MacDonald**, with his wife, Jeanne, and daughter, Joan, is living in Fairfield, Va. Charlie indicates that he will be at the reunion. . . . **Dan Macero** received his Ph.D. in chemistry from Michigan in 1957 and is now assistant professor of Chemistry at Syracuse University. Dan and Jeanette have one daughter, Diana. . . . **John McEvoy** is doing market development work in the Elastomer Chemicals Department at DuPont. He says that his work involves a great deal of travel, but that it is interesting and enjoyable. John and Margaret now have six children, John Jr., Kevin, Timothy, Bridget, Mary Beth and Christopher.

Doug McGrew, now head of the Production Planning Department of Union Carbide Chemicals at South Charleston, W. Va., is married and a father of two, Sally and Virginia. . . . **Paul McInnes** has been promoted to chief engineer at the Bureau of Aeronautics in Akron, Ohio. He and Eleanor have four children, Pamela, Shiela, Paul Jr., and Stephen, and live in Cuyahoga Falls. . . . **Glenn Mackey** is back at Wright-Patterson, working on the F-105 flight and fire control systems. . . . **Laurance McPheeters** is service engineer with the Engineering Department of DuPont, in Wilmington. He and Polly have two sons, Jon and Paul. . . . **Tom Maddock**, Barbara, and Kimberly Anne are living in Bakersfield, Calif. Tom earned an M.B.A. from the Stanford University Business School in 1957 and is now division manager for Boyle Engineering, a civil engineering consulting firm. . . . **Ray Madsen** has moved to Brea, Calif., to join the newly-formed Special Projects Division of Beckman Instruments, Incorporated. Ray and Ruth have two sons, Ray and David. . . . **Ruben Maine** is employed by Sperry Piedmont, in Charlottesville, Va. He and Nancy now own a new home, with three acres of land for their three children to romp on. . . . **Wally Lebowitz**, M.D., married Sylvia Greenberg in the summer of 1958 and now lives in Brighton. A son, Adam, was born in 1959. Wally has re-

cently completed his residency in internal medicine and is now a research fellow in cardiovascular disease at the Harvard Medical School and the Thorndike Memorial Laboratory of the Boston City Hospital. . . . **Jonny Leffler**, Ruth, Jere, Linda and Frederic, are in Lebanon, Pa. Jonny divides his time between managing his building construction firm and a modern jazz combo. . . . **Jerry Levine**, now living in San Francisco, recently left the Stanford Research Institute, to become manager of Administration and Planning at Fairchild Semiconductor Corporation. . . . **Howard Livingston** is at the Institute, working on his doctorate in metallurgy.

Gil Lewis is in Silver Spring, Md., employed as a manufacturer's representative, selling to Federal agencies. Gil and Geri have two daughters, Debbie and Janet. . . . **Bob Lindquist** is with the Atlantic Bearings Corporation, as sales engineer. Bob, Jane, Eric, Peter and Karen live in Cape Elizabeth, Maine. . . . **Larry Lortscher** has been living in Columbus, Ohio, where he worked for five years in chemical engineering research at Battelle Memorial Institute and joined Spencer Chemical Company as sales and technical representative in 1957. Larry and Nancy have one daughter, Karen Ann. In December of 1960, he was named eastern sales manager of Spencer's Industrial Chemicals Division, with offices in New York City.—**Richard W. Willard**, Secretary, Box 105, Littleton, Mass.; **Robert S. Gooch**, Assistant Secretary, 407 Danciger Building, Fort Worth 2, Texas.

'52

Having just watched '52's favorite TV announcer, **John Townsend Fitch**, with the 11 o'clock news on WHDH in color no less, have decided to write this month's news. John and family are living in West Concord, neighbors of the **Wesley Haywoods**. Wes was recently appointed staff scientist at the Bedford Research and Development Center where he will advise in the infrared field and the utilization of optical and infrared techniques. Wes has directed Raytheon Missile Systems infrared work since 1955.

Many foreign stamps on the mail this week. From Cali, Columbia, S.A., **Gustavo Gomez** writes that he is managing three corrugating plants and acting as forestry advisor for Carton de Colombia with the title of branch plants director. . . . **Paul H. Skogstad** is with North American Aviation, S.A., representing the company in the field of Armament and Flight Controls and Inertial Navigation Systems throughout Western Europe from his base in Freiburg, Germany. . . . **Parker Gay** is with Marcond Montag Company, Exposition Department, in Peru as a geophysicist exploring for iron ore and other minerals. Parker was married in March 1959 to Shirley Jean Eddy in the Stanford University Chapel, and announces Parker Eugene Gay born July 1960. . . . **Ricardo E. Haegler** is with Toledo do Brasil (Toledo Scale to us) in Sao Paulo, Brazil as sales manager,

and mentions he hopes to be back in the states in April or May.

On the home front, California Standard announces the appointment of **Stanley J. Dorst** to the position of senior economic analyst, the fourth such appointment made under the company's Professional Specialist Program since 1956. Mr. Dorst has headed up Standard's Canada Analytical Staff since June 1957, and will now in addition provide analyses and evaluations to top management. . . . **Howie Fawcett** writes from Newport News, Va., that he is now a staff supervisor and that his most recent and spectacular achievement to date was to launch the aircraft carrier Enterprise with "plenty of serious considerations and plenty of Barnum and Bailey too." . . . **Thomas G. Hall, Jr.**, is in Rutland, Vt., with General Electric as administrator of Employee Relations for the two plants in Rutland and Ludlow, making jet engine parts. . . . **Bill Moss** writes from South Carolina that he is working for Deering Milliken in Marietta as a production department head after work in Industrial Engineering, Product Development, and New Product Licensing Programs. Bill lives in Spartanburg.

Mike Sapuppo is with M.I.T. Instrumentation Lab in Cambridge as assistant director for Miniature Components working on Research and Development of Inertial Guidance Components. . . . **Freeman Dyke** is with Management Systems Consulting Division in Gaithersburg, Md., as vice-president in charge of the consulting division. . . . And **Paul Hayner**, manager of Product Research Department of Sanders Associates in Nashua, N. H., was recently a panelist at a symposium on "Growth Through New Products" held at the Harvard Club in Boston, and sponsored by Quantum, Inc. . . . And the hour is late, and the news is light, so I'll be signing off until next month.—**Dana M. Ferguson**, Secretary, 242 Great Road, Acton, Mass.

'53

Brother **Dick Chambers** with his family of three has wandered back to Boston after a sojourn in New Jersey. Reckon he has decided money isn't everything in life, as he is back at M.I.T. as a research engineer. He's the supervisor of a research project concerned with the mechanical properties of plastic foam. . . . **Jon Van Winkle** dropped by the office for a brief but pleasant visit. He is still with General Electric, and from the sound of things they are quite happy with each other. His plans for the future have changed, though, to allow a year and a half leave of absence to work for his doctorate in Chemical Engineering at Rensselaer Polytechnic Institute. . . . **Tom** and **Nancy Faulhaber** are pleased indeed to announce the arrival of little Thomas Jr. . . . (Can't remember whether I'm repeating myself or not on this next one, but . . .) **Leroy** and **Toni Malouf** completed their "mixed doubles tennis team" when their second daughter arrived sometime before Christmas.

Arnold Barnes, Jr. (53-G) joined "the masses" this January and married Sally Spall, who is a senior at Boston University College of Liberal Arts, of Waltham, Mass. Arnold, if you recall, transferred to M.I.T. after receiving his bachelor's degree from Princeton, completed his master's at Tech and is now a candidate for a Ph.D. . . . **George Maling** married **Norah Horsfield** (a graduate of Lasell Jr. College) only a month earlier. They are now living in Cambridge. George went on to grad school and completed his S.M. at Tech, and is now completing his doctoral studies in the Physics Department. . . . **Douglas Fuerstenau** (53-G) will receive the 1961 Rossiter W. Raymond Memorial Award of the American Institute of Mining, Metallurgical, and Petroleum Engineers for his papers on "Retention Time in Continuous Vibratory Ball Milling." (It is worth noting that he was also the first recipient of AIME's Robt. Lansing Hardy Gold Medal in 1957, a medal which recognizes exceptional promise in a young metallurgist.) Douglas is now an associate professor of Metallurgy at the University of California, and previously was employed at Union Carbide Metals Company. . . . Happy Spring!—**Martin Wohl**, Secretary, Room 1-131, M.I.T., Cambridge, Mass.

'54

By the time you read this, the weather will, I hope, be less consistently white. As these notes are being written, in early February, this particular part of "the South" looks and feels more like northern New England. But the mail, true to tradition, has not been frustrated by the weather. Several letters full of class news have arrived recently. **Dean Jacoby**, for example, has been digging up items on various people, which we forthwith repeat. . . . **Bob Reichard** and his wife **Jacqueline** have a son, name and birth date unknown, to keep them busy. They were married in May, 1958, and are living in Subury, Mass. . . . **Bob** and **Tikki Anslow**, as was previously reported, have bought a new home in Lexington, Mass. Bob reports that it is a "large salt-box; also a large do-it-yourself project." . . . **Dave Vogel** and his wife have announced the arrival of a third son, Peter. The Vogels live in Madison, Wis. . . . **Warren Weatherill** is, says Dean, "currently reporting from Seattle, Wash." . . . **Al** and **Jane Ward** have adopted a boy, **James F. The Wards** are located in Pittsburgh, where Al is a planning supervisor for five million tons of steel. I understand that he has some help when he wants to move it.

Chuck Masison writes from Rockland, Mass., that he has been working on BMEWS as a project manager for Sylvania, but that job is phasing out. I assume, however, that he will stay with Sylvania. Chuck and wife **Ruthie** have four children, three boys and a girl. From Chuck also comes word on some other members of the class. . . . **Vic Ellins** is a digital computer project manager for

Sylvania, working in the MOBIDIC Program Office. Vic and wife Elaine Rita have two children, Sharon and Susan, and are living in Sharon, Mass. In his spare time, Vic is teaching a course in switching circuits at Northeastern University, Evening Graduate Division. . . .

Burt Noyes is also with Sylvania, in the Systems Analysis Department of the Data Systems Operation. Burt married Gerd Wollan of Bergen, Norway, in May, 1959, and the two of them are now living in Wellesley, Mass. Burt allows as how he plans an extended visit to Europe this fall. To visit in-laws, I suppose. . . . **Mel Cerier**, Chuck notes briefly, is working with Vic Ellins on MOBIDIC. (MOBIDIC, for the benefit of the uninitiated, stands for Mobile Digital Computer, a large-scale, truck-mounted machine being built by Sylvania for the Army.)

Last, but not least, we have a note "from the desk of Dr. **Jerome B. Cohen**." Jerry is an assistant professor of materials science at Northwestern University. In January, he received an award from the American Institute of Mining, Metallurgical and Petroleum Engineers, the Hardy Medal (established by Professor and Mrs. Hardy of M.I.T. in honor of their deceased son) for the metallurgist in this country under 30 years of age showing "exceptional promise." Hearty congratulations, Jerry! Jerry and his wife and their very young baby girl are living in Evanston, Ill. . . . That about uses up the available news. Why don't you drop me a note, as did the sterling gentlemen discussed above. We are all interested in what other members of the class are doing.—**Edwin G. Eigel, Jr.**, Secretary, 311 North Thomas Street, Arlington 3, Va.

'55

News from the architects abounds this month. **John Dixon**, eager to announce the arrival of a son in December, hastens to point out that he and Carol Nipomnich of Brooklyn were married last December. Just hadn't gotten around to writing! We received the latter news earlier and passed it on, meanwhile Carol has given up teaching for a while. Jack also hastens to point out to those who seem to feel that he has a soft job as associate editor of "Progressive Architecture" that it involves one glorious "charrette" each month. . . . Other architects in the New York area include: **Syd Klein**, who with Matty and their three children, the third a recent addition, lives in New York; **Marty Raab** and Gail, living in Great Neck, Long Island, with two offspring; and **Steve Lirot** and Shirley and their two, a bit to the south in Freehold, N. J. . . . Jack raises a good question which perennially bothers the architects and others who weren't in four-year courses. What class are these creatures in who start with one group and finish with another, for purposes of reunions, notes, etc.? The normal procedure is to classify graduates according to the year in which they receive a Bachelor's degree. How-

ever, a request to the Alumni Association for a change in class affiliation will place you with the class of your choice (assuming that the choice is reasonable!).

Ellen Dirba Harland and **Irv** are also jubilantly proclaiming the arrival of their firstborn, Susan, last November in Aspen, Colo. One Sunday recently the home of Franz Benedict, the Aspen architect with whom Ellen worked (works?), was featured in the magazine section of the New York Times. . . . **Dick** and **Ella Paton Gardner** have moved from Detroit to Birmingham, Mich., the half-way point between Pontiac, where Dick is "urban planning" for the Oakland County Planning Commission (he's also nearing completion of a master's degree in this field), and Sterling Township, where Ella is building Jupiters and Redstones for Chrysler, a task involving occasional travels to Huntsville and Mobile. . . . **Chan Stevens**, traveling the midwest as a sales engineer, writes that he is living on a soil bank farm near Mansfield, Ohio, and has plenty of room (not to mention plows) for classmates in the area. . . . Four **Schreibers** sent Christmas greetings this year from Wellesley Hills, young Tom in addition to Harry, Peg, and Meg. . . . **Robert McKinney** was married during the holidays to Barbara Carol Murrah of Marfa, Texas, a student at Sul Ross State College in Alpine, Texas. Bob is working as a geologist in that area, having received a master's degree from the University of Texas after leaving M.I.T. —Co-secretaries: **Mrs. J. H. Venarde**, 107 Mullin Road, Wilmington 3, Del.; **L. Dennis Shapiro**, 15 Linnaean Street, Cambridge 38, Mass., ELiot 4-4901.

'56



Reunion time is approaching and you should be receiving the mailings with all the latest information and reservation applications. Be sure to return the questionnaire soon so we can tabulate before the reunion.

Turning to the activities of our group. . . . **Arnold Breeden**, working for G. L. Martin, is back in Baltimore after a rainy season in Florida. . . . **Steve Cohen**, having finished at Harvard Med. is now at Boston City Hospital. . . . **George Forsen** has gathered his multiple degrees and has gone west to work for Stanford Research Institute. . . . **Stuart Frank**, having finished at N.Y.U. Med., is now at Grace-New Haven Community Hospital. . . . **Lt. Phil Lieberman** has won the Air Research and Development Command photography award for the second year. This comes as no surprise to us after viewing Phil's contributions to the yearbook. . . . **Steve Newman** has finished at Baylor Med. and is now at Receiving Hospital in Detroit. . . . **Bernie Patnode** has left Foster Grant to join the production technical service department of Monsanto's Plastics Division. . . . **Max Plager** is now at the University of Chicago. . . . **Ken Randolph**, reunion committee member, is now in research administration with Polaroid after working in the Industrial Liaison Office at Tech. . . .

Pete Rekemeyer is at the Y-12 plant of Union Carbide Nuclear in Oak Ridge. . . . **Devon Schermerhorn** is with Lago Oil and Transport in Aruba, Netherlands Antilles. . . . **Al Isham** is co-author of a lead article on glass reinforced plastics in the December issue of "Plastic Technology." Al is a project engineer in the laboratory for Owens Corning Fiberglass. He has married Jean Hayward of Providence.

Bob Malster and **Fred Culick** still need help on the reunion work. You architects can help on the art work. Contact Bob at 49 Elsinore Street, Concord, Mass., and Fred at 122 Langdon Road, Watertown 72, Mass. Meanwhile, back to the homework.—**Bruce B. Bredehoff**, Secretary, 1094 Center Street, Newton Center 59, Mass.; **M. Philip Bryden**, Assistant Secretary, 3512 Durocher Street, Montreal 18, P.Q., Canada.

'57

Harry Johnson received an M.B.A. from the University of Pennsylvania last year. Harry was awarded a Huebner fellowship this year for doctoral studies in insurance. . . . **Jack Safirstein** and Susan Lasker were wed last November. Jack is doing graduate work in New York. . . . Captain **Jack Martin** is currently stationed in Greenland as a resident engineer. . . . **Ralph Warburton** writes: "Carol and I were married in the M.I.T. Chapel, June, 1958, and enjoyed a magnificent summer in England, France and Italy, where I studied urban design on M.I.T.'s Skidmore, Owings and Merrill travelling fellowship." Ralph received his M.Arch. degree from Yale in June, 1959, and his M.C.P. in 1960 with a thesis entitled "Space for Urban Activity." . . . **Elliot Wolk** graduated from the Harvard Business School last year and is in the underwriting department of H. Hentz and Company in New York. Elliott recently became a registered representative. . . . **Mal Jones** wrote me a letter last year in which he quoted a letter from **Bob Murphy**. Bob was then stationed out at Kirkland AFB, New Mexico, doing R and D work on nuclear weapons but has been out of the service since last August. Bob wrote that **Dean Kihara** had stayed on at Tech for a Master's in Course II, and has been with WADC at Wright Patterson AFB since the summer of 1958. **Bryan O'Kane** was then stationed at Wright-Patterson also. . . . **Sam McIntosh** is with Chance Vought who sent him to Europe for advanced studies in fluid dynamics. . . . **Arthur Pearson** has developed some new inorganic glass compositions for Bell Telephone Laboratories. . . . Your secretary was in Cambridge interviewing Tech seniors for Bankers Trust Company of New York in March. He is in the process of planning a trip to Europe this summer.

Well, news is somewhat skimpy at this time of year. I hope some of you diffident '57ers will write in before the summer starts so we can update our column and begin Tech's second century with the

current news. Our fifth year reunion is not far away now and anyone wishing to help out is requested to send us a note.—

Alan M. May, Secretary, 525 E. 81st Street, New York, N. Y.; **Martin R. Forsberg**, Assistant Secretary, 11 Scottsfield Road, Allston 34, Mass.

'58

Here's something for local '58 alums to include in their appointment schedule. On April 8, about the time you receive this, **Bob Jordan** has arranged a '58-'59 gathering in connection with the Institute's Centennial. All current addresses in the Boston area have been contacted. . . . Thought you would be interested in a number of the recent weddings: **Charles de Erney** was married to Carroll Post Willim in New York on January 1, 1961. Charles is presently with United Shoe Machinery Company in Boston. . . . **Arnold E. Jacobson** married May Birra Smith in Boston on October 23, 1960. . . . **Arthur Shavit** and Leah Elinor Elkin were married in Swampscott, Mass., on October 22, 1960. Arthur is a doctoral candidate at M.I.T. where he is also on the teaching staff. . . . **Robert E. Lee** married Carol Ann Charette in Manchester, N. H., on October 7, 1960. Bob is back at the Institute as a member of the Fiscal Staff of the M.I.T. Division of Sponsored Research.

Our class seems to be making an adequate contribution to Uncle Sam. Among those presently in the armed forces are: Air Force 2nd Lt. **Robert L. Kahn** who has just completed the missile officer basic course in the Air Defense School at Fort Bliss, Texas; Marine 2nd Lt. **John P. Nixon, Jr.**, who is reported to have made his first solo flight at the Saufley Field Naval Auxiliary Air Station at Pensacola; 2nd Lt. **Frank Bielsik**, Rome AFB, Rome, N. Y.; and 2nd Lt. **John O'Brien**, Oxnard AFB, California.

Spoke to **Helmut Weymar** the other day and got caught up on his activities. Helmut is teaching and studying at the School of Industrial Management while commuting with Carolyn from his newly acquired house in Duxbury. . . . From latest reports **Mike Kenyon** is still a railroad man for the Rio Grande. . . . In Switzerland for graduate work at the Federal Institute of Technology is **John H. Nebiker**. . . . **Check K. Jung** is now with Sperry Gyroscope in Great Neck, Long Island, as an assistant engineer in the High Power Klystrons Engineering Department.

Next month we hope to concentrate on bachelors if we can get enough information. Therefore, here is a memo to bachelors: Since you don't have anything else to do but enjoy yourselves, drop us a line on some of the local doings in your areas. . . . In the near future we will be interested in a head count of our class: fancy statistics on geographical, occupational, educational and extra curricular distributions and also some marital data. Of course we will use the most up-to-date motivational market research tricks to get this vital information. Hope you will co-

operate. Look for a questionnaire mailing in May or June with the results some time in the fall. . . . Since I do quite a bit of traveling, chances are good that I may be stopping in to see some of you soon.

Graduate Class: For ease of reference I am separating the graduate class notes from the undergraduate notes. . . . One of the brightest stories I've heard about '58ers concerns **Art Alexander** and **Chuck Langenhagen** of Course XV. They have been in the Boston papers for several months now. These two fellows formed Allaco Products which specializes in applying epoxy resins to pattern making and mold forming. The fact that ". . . capital is not being sought, although plenty of people are standing in line to offer it" indicates the success of their venture. . . . In August **Donald D. Metzger** was appointed manager of advanced device development of IBM's Owego Federal Systems Division. . . . **Samuel J. Davy** is now the director of engineering for National Company in Malden. . . . Another Sloan Fellow to be promoted recently is **Victor J. Lombardi** as assistant to the president of Scott & Williams in Laconia, N. H. In December **Gary Fromm** married Sandra Mae Berkman in Norwich, Conn. Mrs. Fromm is the director of alumni relations and a member of the faculty at Brandeis University. Gary, a member of the faculty at Harvard, is the author of several well known articles on economics and has served as a consultant to the Joint Economic Committee of the United States Congress.—**Cornelius Peterson**, Secretary, 301 Allston Street, Brookline 46, Mass.

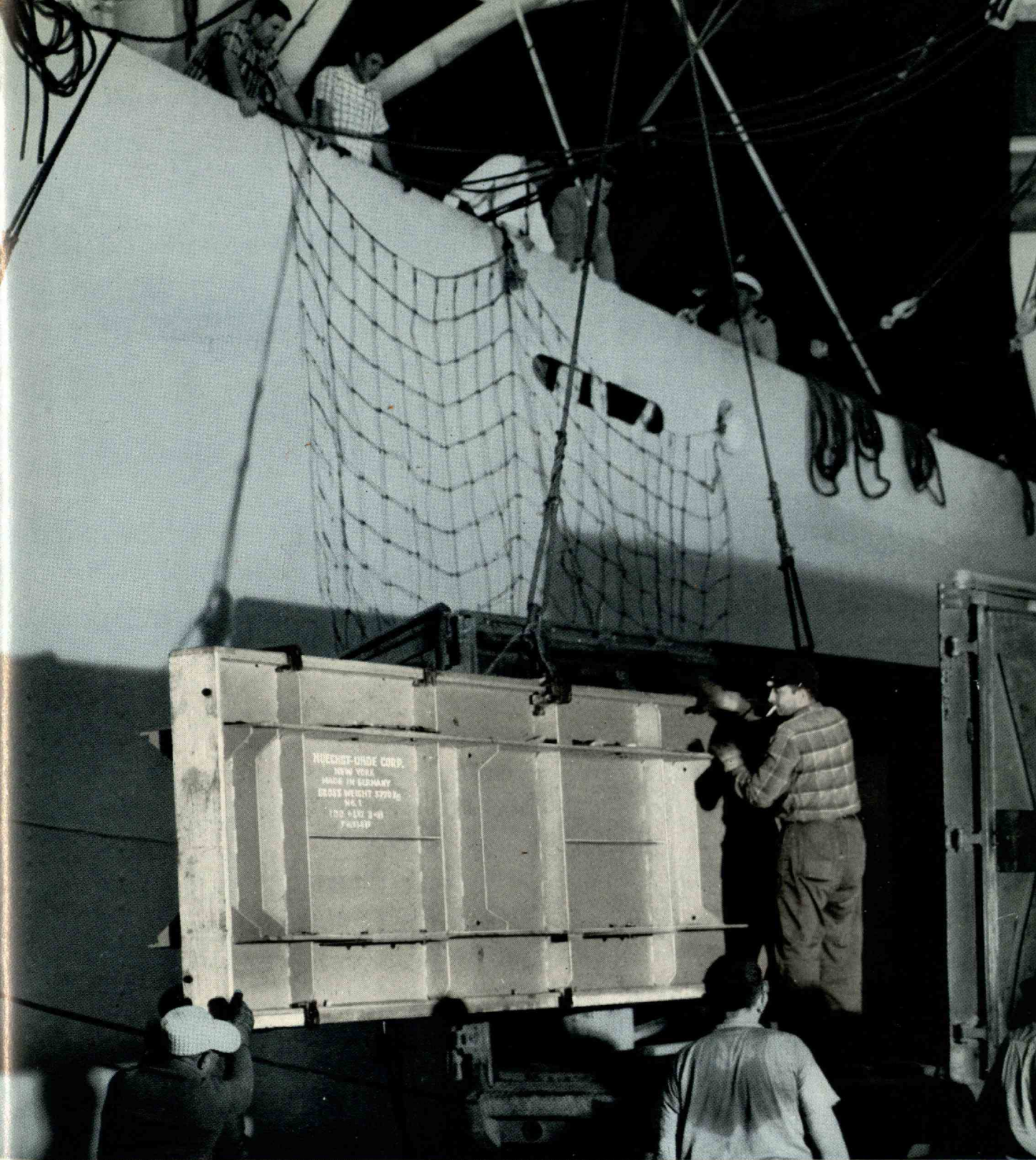
'60

I am sure many of you have seen various articles relating to M.I.T. as a result of the Centennial celebration. If you have not seen it, take a look at the February issue of *Fortune* which contains an excellent article on the Institute. . . . And here is some of the news. **Bob Mullen** wrote a very nice note. He is working in my old home state of Iowa, industrial engineering for Alcoa (Davenport works). Bob and his wife, Sharon, have a new son, Brian David, born on January 5, 1961. Congratulations to both of you. . . . **Dick McDowell** wrote awhile back saying that **Charlie McCallum** is in England on a Fulbright. He is studying British Constitutional law at Manchester. Dick got the information from his brother, a freshman at M.I.T. . . . **Bill Nicholson** sent me a whole raft of information. Thanks, Bill. First, two more of the brethren have gotten married. **Howard McDowell** married JoAnn Elvertrom of Battleground, Wash., on December 28, 1960. . . . **Charles Eckert** married Judy Horkheimer, a senior at Simmons, February 2, 1961. Chuck returns to M.I.T. to finish his master's in June. . . . **Dick Cahaly** and **Dick Strauss** graduated from Chemical Engineering Practice School in February. Cahaly is reportedly working with Proctor

and Gamble in Quincy. . . . Bill also reports that the following either have returned or will return to M.I.T. from Practice School in New Jersey: **Earl Pike**, **George Schnabel**, **Bob Gurnitz**, **Pete Silverberg**, **Don Stelling**, **Paul Ferris**, **Tony Sacristan**, **Roger Kiley**, and, oh yes, **Mr. Nicholson** also.

Mike Rosner was another to drop me a line. Mike is at the N.Y.U. School of Medicine. According to Mike, ". . . the work is very challenging and quite a bit different from that at the Institute. I seem to have a hard time convincing people here that not all M.I.T. graduates are engineers." Mike got engaged last August to Joan Barshay from Wheaton College. They plan to be married next August 20. . . . **Al MacLaren** wrote a brief note. He is an instructor in the Department of Missile Training at Chantute AFB in Illinois. Al says he is "single and gloriously so, since the BOQ is too nice and too close to the Officers Club to give up." . . . And I even got a letter from Madrid, Spain. **Manuel Cabrera-Kabana** spent last year at M.I.T. as a special graduate student in the Department of Geology and Geophysics and also in Economics and Social Sciences. Manuel is now the assistant general manager of Esso Standard Espanola among other things. Good luck to you, Manuel.

From the newsclipping service I have gotten some more tidbits of information. **Herb Thaler** married Brenda Segall last November. They are living in Brookline, Mass. . . . **Ronald Ummel** wed Miss Jane Powers way last October. Jane went to LaSalle Junior College. . . . **Donald Goellner**, who received a master's in nuclear engineering last June, married Sara Kiley last November. She attended Wheelock College. . . . **Mike Neidich** also was married in November to Judith Yberg who studied at Smith College. . . . Sorry to be so late on these but it takes time to get the clippings. . . . There are still others making headway in this world. **Richard Rogers** is working for General Radio in West Concord, Mass. . . . **Salomon Seroussi** is evidently on the banquet circuit. At any rate, the Tuesday Club in Springfield, Mass., heard him speak last December. I wonder if he gets paid for it. . . . **Mike Saulich** is doing graduate work at Stanford in electrical engineering. . . . **Marshall Kaplan**, who received a master's in city planning, is working in the planning office of the County of San Diego, Calif. . . . Dr. and Mrs. **R. E. Griswold** (he received a doctorate last June) have a new son, William Maverick. . . . Dr. and Mrs. **J. L. Hirshfield** are now in Holland where he is studying under a post doctoral fellowship granted by NATO. He got a doctorate in June also. . . . I received a notice to the effect that **Clyde Reedy** recently completed the airborne course at The Infantry School, Fort Benning, Ga. . . . **Bill Morris** was commissioned an Ensign in the Coast Guard in January. . . . Well, my typewriter is pretty warm from writing this. Good luck to all of you. Please write.—**John B. Stevenson**, Secretary, 747 Carnegie Avenue, Apt. C-11, Akron 14, Ohio.



Uhde 120,000 Ampere Mercury Cell parts arriving at the Port of New York

ANOTHER EXAMPLE of the part Hoechst-Uhde plays in the chemical industry — providing special equipment, fabricated to specifications established by production experience, and with design adapted to local requirements.

Let us apply production experience to your process problems.

PROCESSES : PETROCHEMICAL • FERTILIZER • CHLOR-ALKALI • ORGANIC • INORGANIC

HOECHST-UHDE CORPORATION

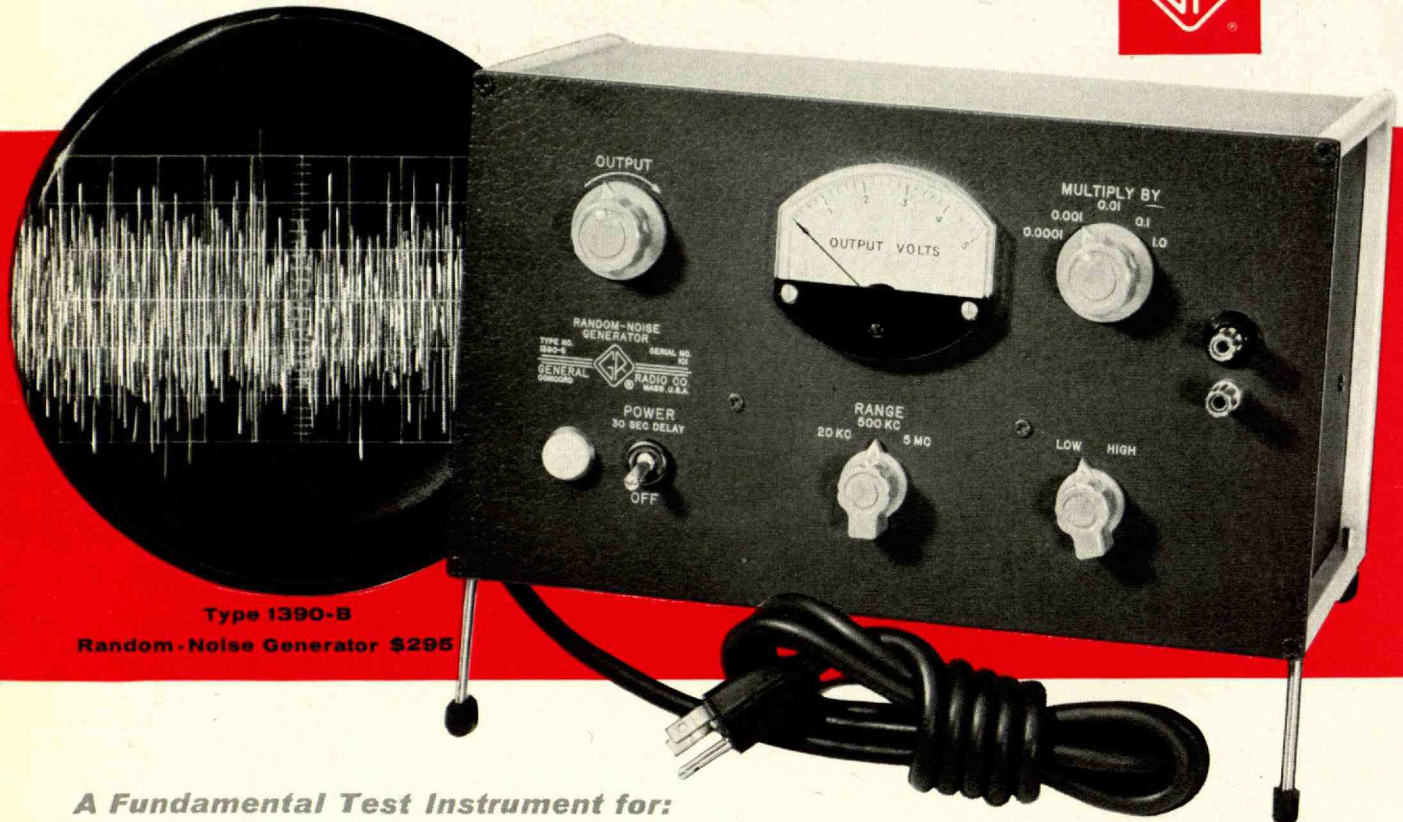


350 FIFTH AVE., NEW YORK, N. Y.

"TOMORROW'S CHEMISTRY"

FOR TODAY'S INDUSTRY"

Random-Noise Generator

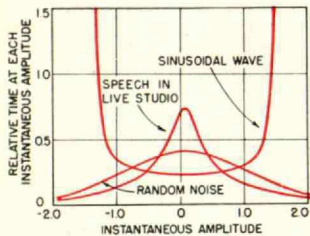


Type 1390-B

Random-Noise Generator \$295

A Fundamental Test Instrument for:

- ELECTRICAL MEASUREMENTS • ACOUSTICAL MEASUREMENTS
- ENVIRONMENTAL TESTING • STATISTICAL INVESTIGATIONS



FREQUENCY RANGE:

20 cps to 20 kc, $\pm 1\text{db}$ (5 to 20 cps, $\pm 2\text{db}$);
20 cps to 500 kc, $\pm 3\text{db}$;
20 cps to 500 kc, $\pm 3\text{db}$; 500 kc to 5 Mc, $\pm 8\text{db}$.

OUTPUT VOLTAGE: 3 volts, 20 kc; 2 volts, 500 kc;
1 volt (minimum), 5 Mc

OUTPUT IMPEDANCE: Source Z for max. output is
approximately 900 Ω ; for attenuated output, 200 Ω .

ACCESSORIES SUPPLIED: Panel extensions for relay-
rack mounting (7-inch height for 19-inch relay-rack).

The Random-Noise Generator, mounted in a test console, aids in checking out automatic astro-navigation systems for the Convair supersonic B-58 "Hustler" built for the Air Force.

Since the photoelectric cell used as the primary sensing element in this navigation equipment must detect very weak star signals in the presence of existing large background noise, any additional random signal which may become superimposed is of paramount importance. The Random-Noise Generator's output simulates such operating noise making this instrument an essential component for determining the effect of photomultiplier or other noise.

The Generator also serves as an important unit in various other Kollsman laboratory and production test consoles. It is used for aligning signal amplifiers, filters, and other elements of the "Astro Compass," to test rotary components, and to check fast switching relays to see where noise is being emitted.



Photo courtesy Kollsman Instrument Corp.

If you would like to know whether the Random-Noise Generator will fit your needs, write or phone any of the offices given below.

GENERAL RADIO COMPANY
WEST CONCORD, MASSACHUSETTS

The Best Instruments
In Electronics

NEW YORK, WOrth 4-2722
NEW JERSEY, Ridgefield, WHitney 3-3140

CHICAGO
Oak Park
Village 8-9400

PHILADELPHIA
Abington
HAncock 4-7419

WASHINGTON, D.C.
Silver Spring
JUniper 5-1088

SAN FRANCISCO
Los Altos
WHitecliff 8-8233

LOS ANGELES
Los Angeles
HOLLYWOOD 9-6201

IN CANADA
Toronto
CHerry 6-2171